

INSTRUCTION MANUAL

PD-35B

Pedestal Drill (415V)

31.5mm Drill Capacity

3MT



D161

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§1. Specification

<i>Model</i>		PD-35
<i>Item</i>		
Drilling cap. (mm)		Ø25
Swing (mm)		450
Spindle taper		M.T.#3
Spindle travel (mm)		125
No of spindle speed		9
Spindle speed (rpm)	50 Hz	180-1680
	60 Hz	210-2000
Column diameter (mm)		Ø92
Table size (m/m)		T 350
Base size (mm)		500×330
Motor		1Hp, 4P, 240V, 1Ph
Net weight (kgs)		142
Packing dimension (mm)	HEAD	800×530×320
	BASE/TABLE	650×420×400
	COLUMN	1360×200×190
Packing cartons per machine		3

<i>Model</i>		PD-35B
<i>Item</i>		
Drilling cap. (mm)		Ø32
Swing (mm)		450
Spindle taper		M.T.#3
Spindle travel (mm)		125
No of spindle speed		9×2
Spindle speed (rpm)	50 Hz	90-1680
	60 Hz	110-2000
Column diameter (mm)		Ø92
Table size (m/m)		T 350
Base size (mm)		500×330
Motor		1Hp, 4/8P, 415V, 3Ph
Net weight (kgs)		154
Packing dimension (mm)	HEAD	800×530×320
	BASE/TABLE	650×420×400
	COLUMN	1360×200×190
Packing cartons per machine		3



§2. Safety Instruction

1. Read Instruction Manual before operating the machine for your own safety.
2. 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.
3. Check cluck, work table, work piece are completely secured or fixed before normal operation.
4. During the machine is not used for a long time, the plug should be disconnected.
5. All children and visitors should be kept at a safe distance from work area, when the machine is operating.
6. Never stand the power cable near the fire or water environment, any broken or pressed of power cable is not allowed.
7. It shall be stable and securely fixed in machine installation procedure for the machine to be used safety.
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. It is prohibited to remove the guard cover away in operation situation.
10. Do not operate this machine beyond the limit of its capacity, refer to specification of this manual.
11. Do not move the table when machine in operation status.
12. Secure work. Use a vise or clamps to hold work when practical.
13. Use recommended cutting liquid, consult the owner's manual for recommended.
14. Feed speed should be executed under safety scope.
15. Do not open the safety guard in operation.
16. Shut off the power, before started the normal maintenance, service, adjustment or repairing.
17. Have your machine repaired by a qualified person.
18. Routing maintenance and repaired should be executed follow the rules of manual.
19. Check all pants are in place and securely locked before transportation. Bump and crash are prohibited.
20. Drill need to be fixed in the chuck.
21. Make sure the chuck wrench had been removed from the chuck before practical.
22. To prevent damaged the work table, a corrected work table adjustment and depth position settle down are necessary.
23. Do not use any damaged or cracked parts.

§3. Unpacking and Checking List

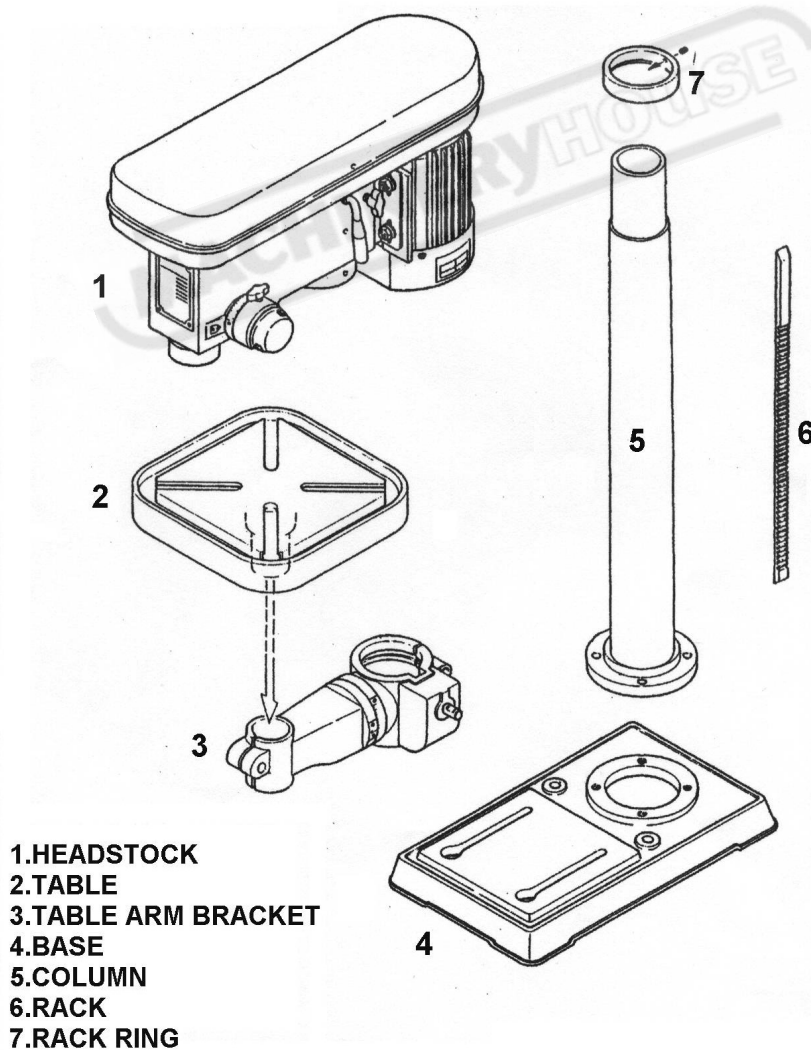
1. Unpacking

Before unpacking, mark 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.

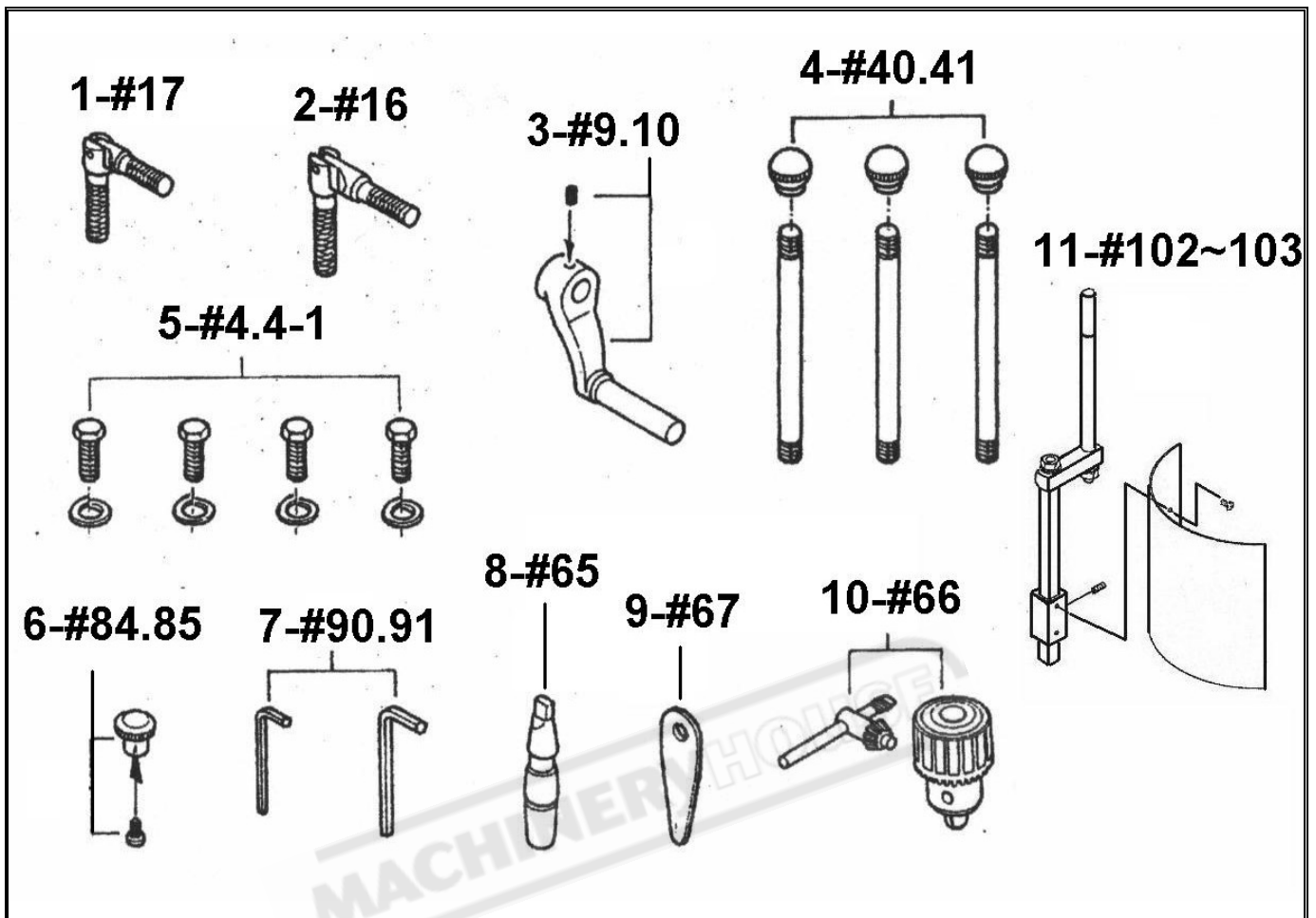
Unpacking procedure:

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.

A. MAIN PARTS



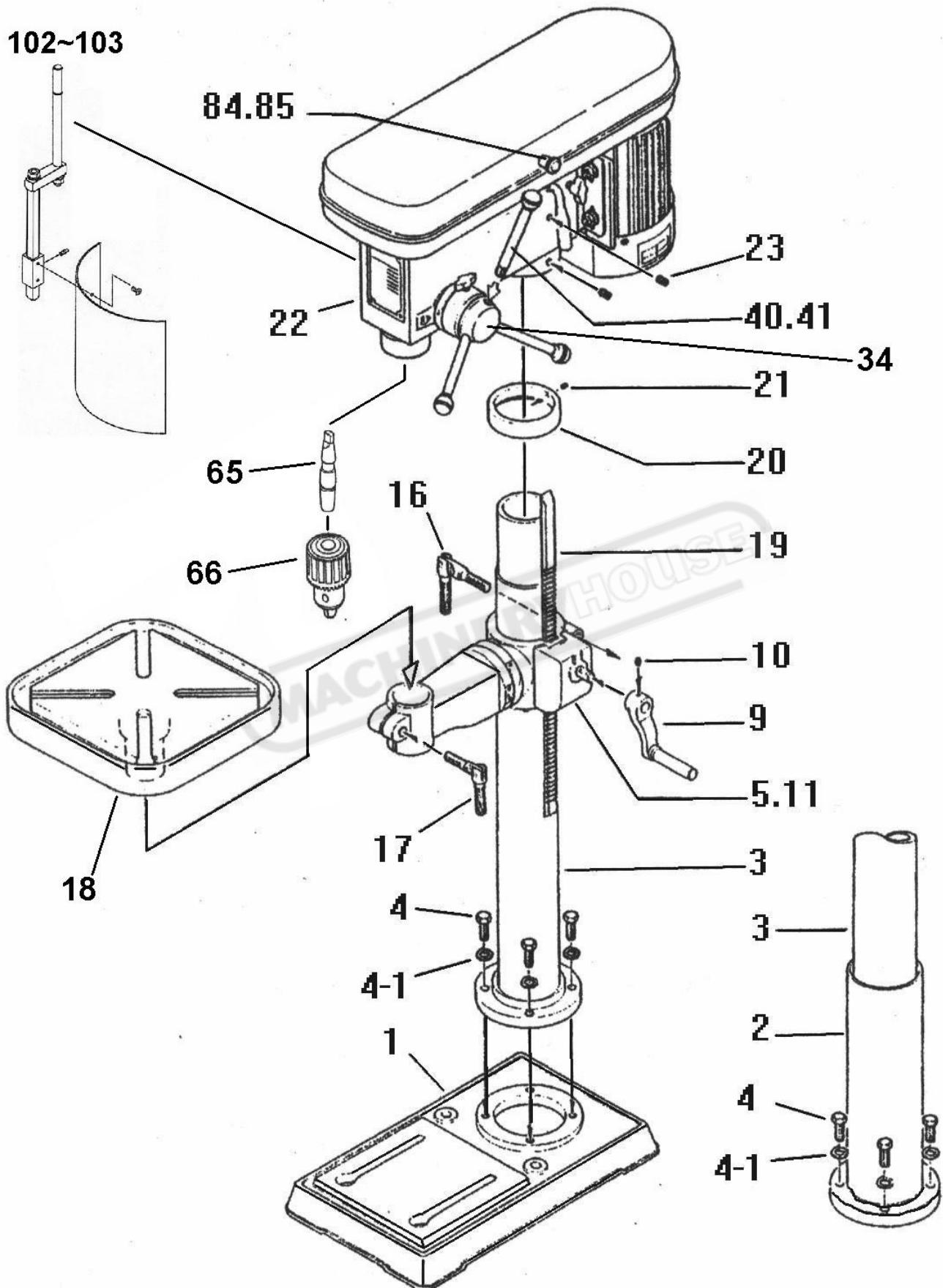
B. ACCESSORIES



STANDARD

1. #17 CLAMP BOLT×1
2. #16 CLAMP BOLT×1
3. #9 TABLE HANDLE×1 / #10 SET SCREW×1
4. #40 FEED HANDLE×3 / #41 GRIP×3
5. #4 HEX BOLT×4 / #4-1 WASHER×4
6. #84 PULLEY COVER KNOB×1 / #85 SCREW×1
7. #90.91 ALLEN WRENCH×2
8. #65 ARBOR×1
9. #67 WEDGE×1
10. #66 DRILL CHUCK/KEY×1
11. #102~103 CHUCK GUARD×1

§4. Assembly Procedure





A) BASE AND COLUMN

- a. Place base (parts no. 1) on floor.
- b. Put column (parts no. 3) on top of base and fix it with 4 sets of screw/washer (parts no. 4/4-1) which are packed in plastic bag.

B) TABLE MACHANISM

- a. Insert rack (parts no. 19) into groove of table bracket (parts no. 5) install this assembly in column (parts no. 16) and put it down to the bottom till the rack locate into flange.
- b. Put rack ring (parts no. 20) on top of rack and fix it with set screw then fix table (parts no. 18) onto table bracket.
- c. Fix table handle (parts no. 9) on bracket. Turn handle up and down to test the performance. If you find it not smooth (slightly tight), loosen rack ring a little and repeat your testing till satisfaction.

C) HEADSTOCK

- a. Position headstock body (parts no. 22) on column, turn the head till the spindle exactly align against the center of table.
Tighten set screws (parts no. 23) to fix headstock.
- b. Insert feed handles/grips (parts no. 40/41) into the handle body (parts no. 34).
- c. Assemble knob and screw (pats no. 84/85) on pulley case.

D) CHUCK

Tightly push arbor (parts no. 65) and chuck (parts no. 66) up on spindle. Be sure to clean spindle and the tapered hole in the chuck before their match.

§5. Handling and Transportation

1. Please refer to instruction manual in specification and machine weight to arrange handling manner. Be sure to use capable fork – lifter to lift of machine.
2. The handling and transportation shall be carried out by qualified persons.
3. Fork – lift 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.

§6. Preparation before operation

<1> Remove anti-rust oil and assembling the accessories

After unpacking and finishing assembly of machine, assemble the required accessories to the machine. After assembly the accessories, be sure to remove the anti-rust oil on the disc, column, spindle end and taper hole.

<2> Installation of chuck and tool

To secure the chuck rigidly to the spindle, you may hit with the wood hammer on the end of chuck to make the chuck fit closely with the taper of arbor. After mounting the tool to the chuck, the screw of chuck shall be tightened by using chuck key.

You may rotate the tool slightly after tightening the chuck so as to get a better tightening effect.

<3> Adjust the appropriate position of working table

In order to have a higher working efficiency, the working table shall be adjusted to such a position that the end of tool is as close as possible to the top surface of work piece.

To have a well stability, the work piece shall be supported completely by the working table. The followings are the instruction for the adjustment of stability:

- * Vertical movement of working table : Loosen the middle ring handle so as to move the working table up and down to an appropriate position. After adjustment for the height of working table, tighten this middle ring handle.
- * Horizontal movement of working table: Loosen the middle ring lock nut, then the working table could be moved forward and backward to the appropriate position required for work. After movement, the middle ring lock nut must be tightened again.
- * Rotational movement of working table : Loosen the disc lock bar, then the working table is liable to be rotated freely. After rotating the working table to the appropriate position, the disc lock bar shall be locked again.

Warning !

1. Secure the work piece to the working table by using appropriate clamping as far as possible.
2. In case the tool has to pass through the work piece, this work piece shall be mounted in such a position that the tool is aligned to the center line of disc.

<4> Fixing of work piece

Except for the drilling or tapping of very small hole, the work piece shall be fixed by using appropriate clamping device, such as vise.

During fixing the work piece, make use of the slots on the disc of working table as far as possible.



<5> Choose appropriate spindle speed

The choice of spindle speed depends upon the drilling and/or tapping diameter as well as the material of work piece.

The following table shows the recommended rpm with relative to the tool diameter for different material.

The spindle speed is indicated on the labeling of machine head.

To make the pulley mechanism able to be adjusted, the disc knob and the adjustment handle shall be loosened. After adjustment, this disc knob and the adjustment handle shall be tightened again.

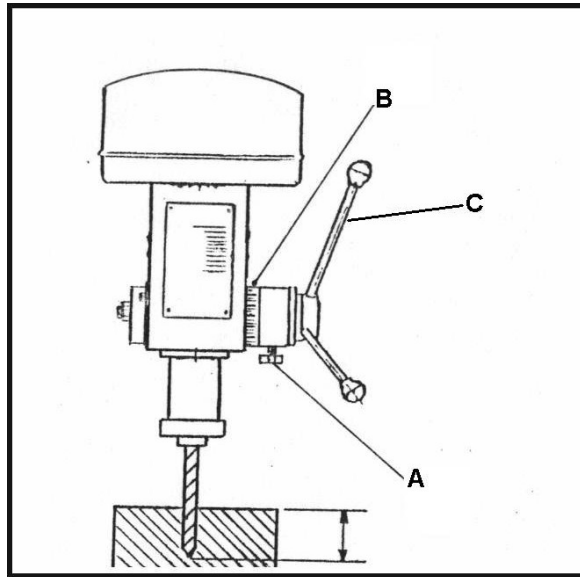
The speed adjustment is done by moving the pulley belt to the intended position.

Tool diameter (mm)	Material				
	Gun material	Aluminum	Cast Iron	Hard steel	Soft steel
2	11900	14300	3800	2400	3350
3	8000	9500	2550	1600	2230
4	6000	7200	1900	1200	1680
5	4800	5700	1530	955	1340
6	4000	4800	1270	800	1100
7	3400	4100	1090	680	960
8	3000	3600	960	600	840
9	2650	3200	850	530	740
10	2400	2860	765	480	670
11	2170	2600	700	435	610
12	2000	2400	640	400	560
13	1840	2200	590	370	515
14	1700	2000	545	340	480
16	1500	1800	480	300	420
18	1300	1600	425	265	370
20	1200	1400	380	240	335
22	1100	1300	350	220	305
25	950	1150	305	190	270

<6> Adjustment of feeding limit

To prevent unwanted penetration to work piece, the feeding limit shall be set by adjusting the appropriate position of feeding depth fixing button as long as the distance between the end of tool and top surface if work piece is measured.

To adjust the appropriate position of this fixing button, the fixing nut shall be loosened for adjustment, and be tightened for fixing.

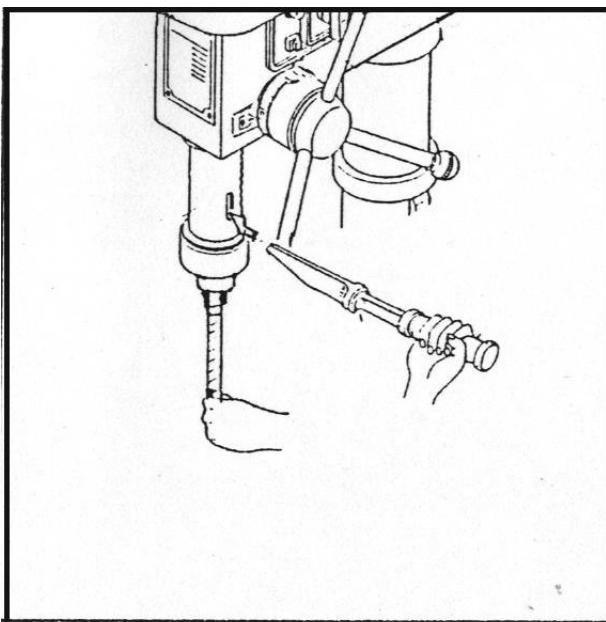


A. Setting of feeding depth

1. Loosen knob A.
2. Turn scaled ring B to desired feeding depth.
3. Lock knob A.

B. Removing drill bits

1. Release knob A.
2. Push feeding bars C downward to go down spindle.
Do not push spindle too long to avoid spindle bending.
3. Turn scaled ring B to fixed range.
4. Lock knob A.
5. Use wedge bar to remove drill bit as showed in drawing.



1. RECOMMENDED USED SPECIAL DESIGNED WEDGE BAR FOR WITHDRAWING TOOL
2. DON'T PUSH SPINDLE STROKE TOO LONG TO AVOID SPINDLE BINDED.



§7. Speed change & Belt tension

1. When speed change is required. Loosen lead bolt (parts no. 30) 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 refence.



For PD-35

Belt Position	Speed (RPM) 50Hz	Belt Position	Speed (RPM) 50Hz
D E	180	D G	620
C E	300	A F	1050
D F	320	B G	1200
B E	430	A G	1680
C F	480		

For PD-35B

Belt Position	High	Low	Belt Position	High	Low
D E	180	90	D G	620	310
C E	300	150	A F	1050	525
D F	320	160	B G	1200	600
B E	430	215	A G	1680	840
C F	480	240			

Use selection switch to choose High or Low speed if the machine is equipped with 2-speeds motor

<ol style="list-style-type: none"> Loosen knobs B on both sides of headstock. Push handle A forward as arrow sign to get belt tension. Lock knobs B firmly to fix belt tension. 	<p>For proper belt tension, use 10 lbs pressure or hand pressure on the belt as shown as bellow. The recommended distance is about 13mm.</p>

§8. Maintenance

<1> Maintenance of parts

No.	Maintain parts item	Period	Description
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	Power Cable	1 Week	1. Check the cable configuration if damaged or broken change it
7	Motor	3 Month	1. Clean the dust and void water spray to inner wire
8	Base	Everyday	1. Clean and add rust– proof oil
9	Belt	1 Week	1. Check belt tension and aging status
10	Pinion	1 Week	1. Clean the dust and chip then add lubricant

<2> Lubrication :

- ★ Add grease to the spindle once a month.
- ★ Add appropriate lubricant to the gear transmission once a week.
- ✱ Recommended cutting oil : ISO-32; SAE 10#.
- ✱ Recommended cooling fluid : Ti- co.

<3> Cleaning :

Be sure to keep working table clean before and after working so as to have better operation environment. Any other parts shall always be kept in clean situation.

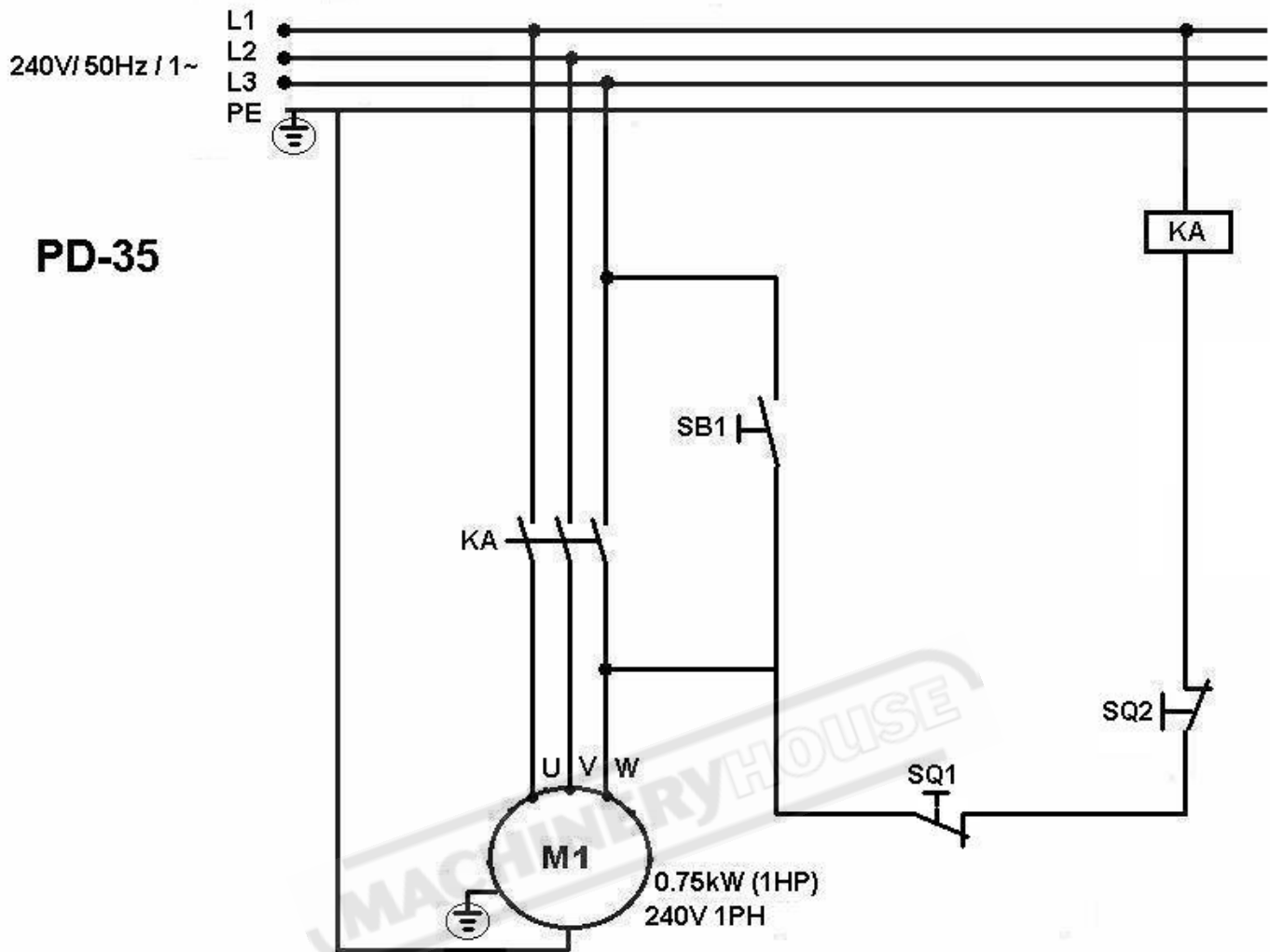
<4> Pulley belt change

- ★ If the pulley belts are checked to be worn and/or broken, just replace it. The appropriate specification for the front belt is LB35, and for motor is B30.
- ★ If the pulley belts wear and/or break very often, please check if the belt tension is adjusted too much or there is any other reason to cause this situation.

§9. Trouble shooting

Trouble description	Possible reason	Solutions
Motor can not rotate	1. Main switch break down	1. Replace main switch
	2. Push button break down	2. Replace push button
	3. Motor wiring error	3. Rewiring for motor connection
Spindle can not reverse	1. Wiring error of motor connection	1. Rewiring for motor connection
	2. Limit switch break down	2. Replace limit switch
	3. Magnetic switch break down	3. Replace magnetic switch
Abnormal noise on spindle	1. Bearing wear	1. Replace bearing
	2. Too much tension on pulley belt	2. Loosen the pulley belt
Spindle moving unstably	1. The deformation on the gears of spindle	1. Repair the gear
Tool shaking	1. Chuck break down	1. Replace chuck
	2. Clamping mechanism break down	1. Re-clamping

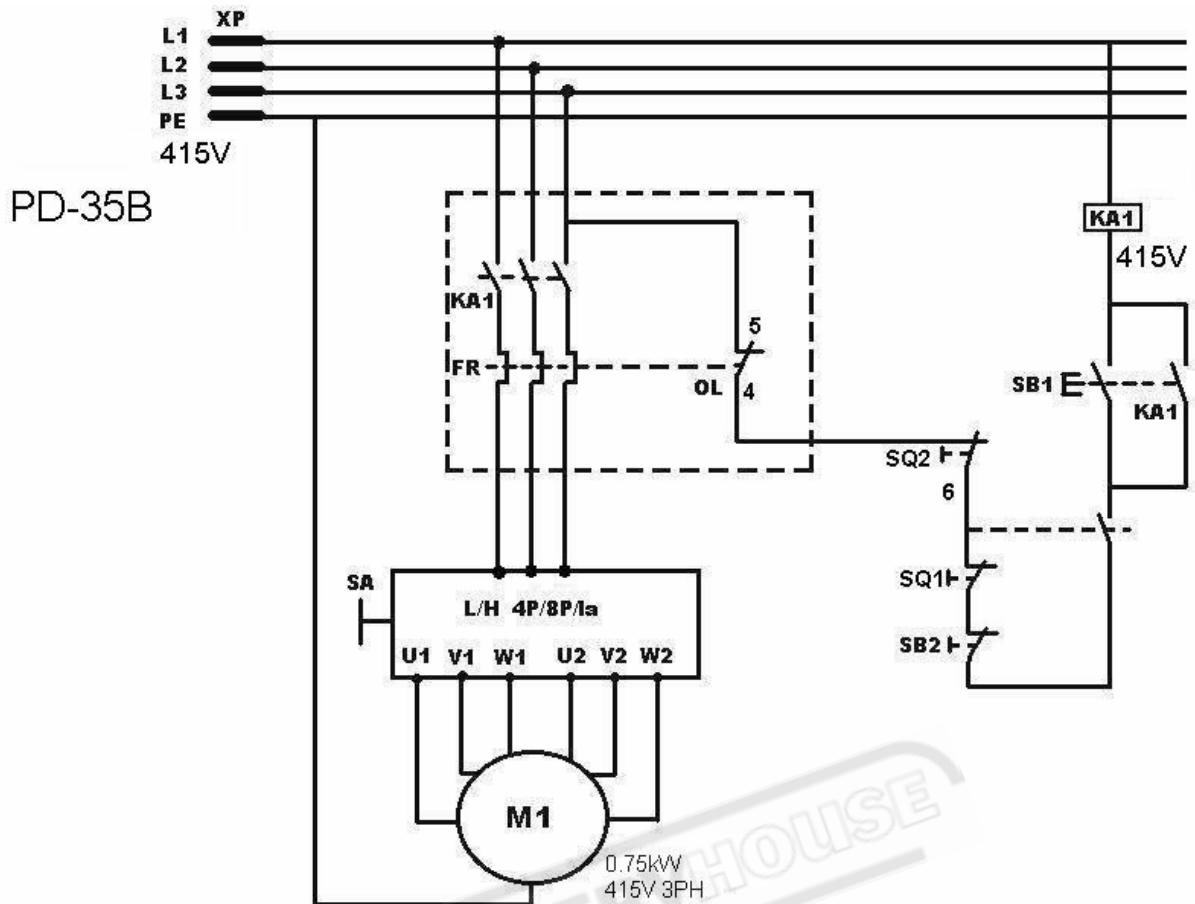
§10. Component part list and control circuit diagram



PARTS LIST

PD-35

Part No.	Component/ Object	Type/ Model	Ratings/ Technical Data	Pcs	Complies with the following standard	Marks of conformity granted
M1	MOTOR	PD-35	0.75kW/240V 50Hz/1PH	1	EN60034-1	CE
KA	CONTACT RELAY	JD3	AC 230V 16A	1	EN60947-4-1 EN60947-5-1	CE
SQ1	LIMIT SWITCH	VS10N	AC 250V 10A	1	EN61058-1	
SQ2	MICRO SWITCH CHUCK GUARD	VS10N	AC 250V 10A	1	EN61058-1	
SB1	EMERGENCY STOP	ALEPB25 -1/C	INC AC 250V, 3A	1	IEC 144	CSA CE LR108205-2

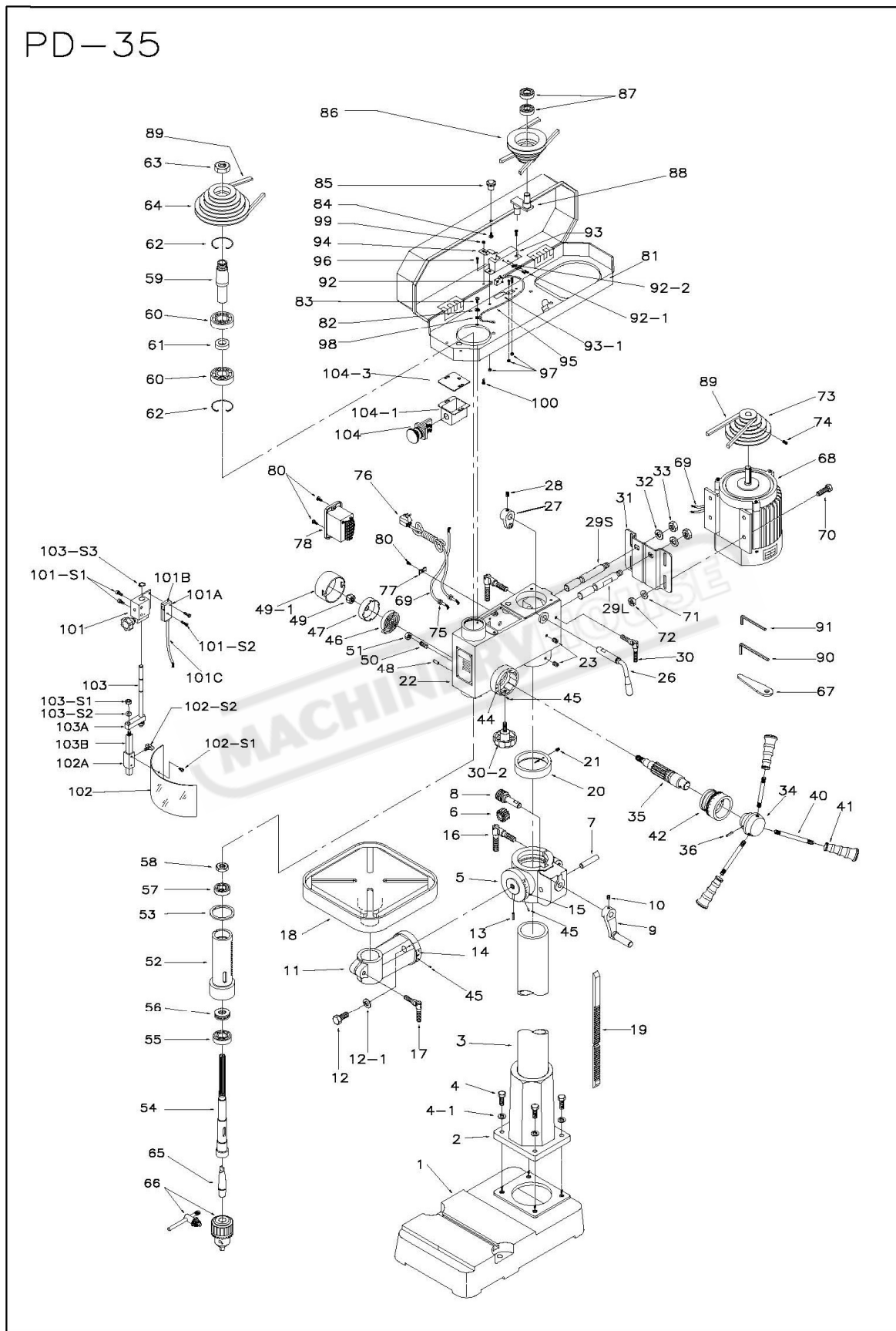


PARTS LIST

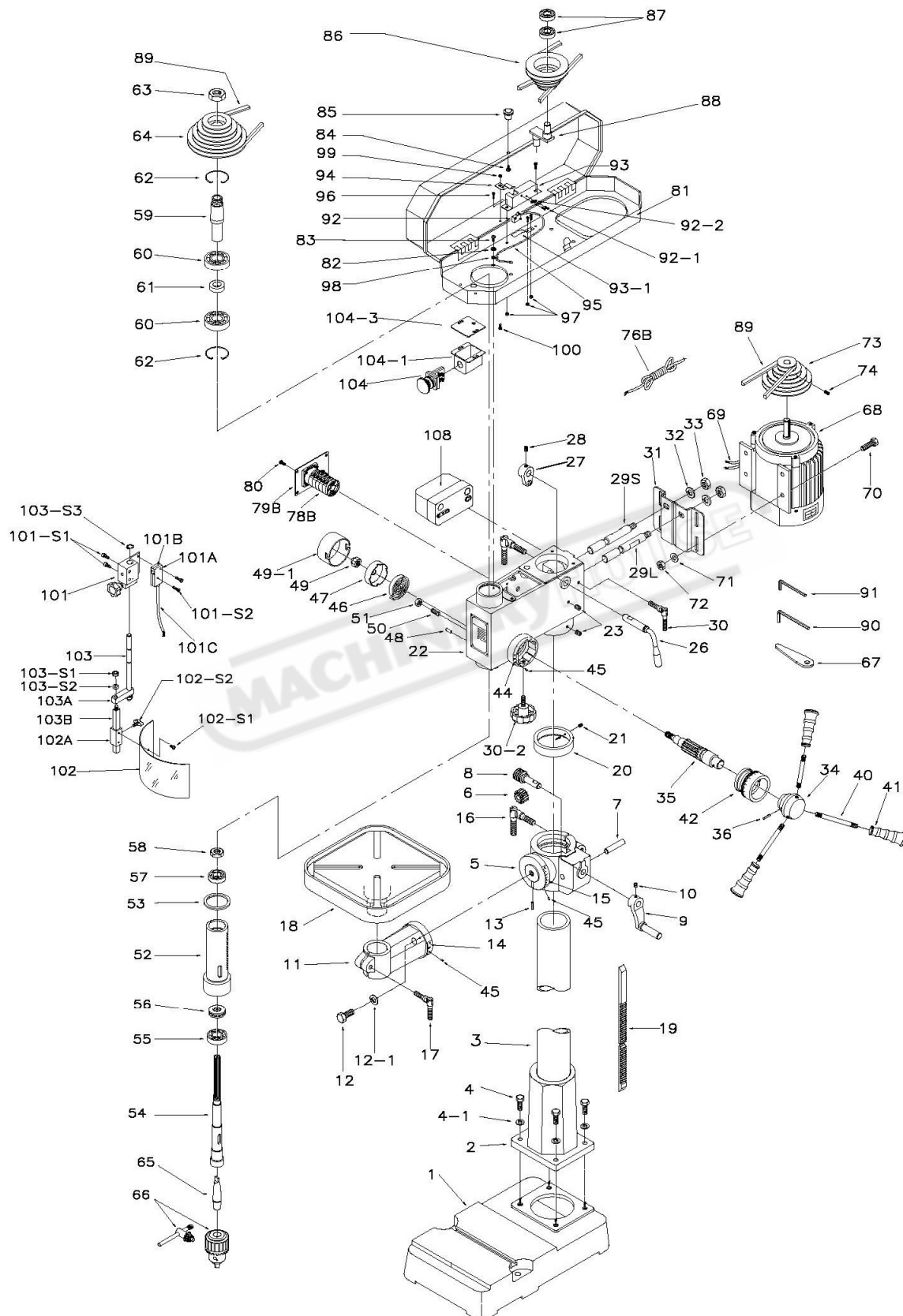
PD-35B

Part No.	Component/ Object	Type/ Model	Ratings/ Technical Data	Pcs	Complies with the following standard	Marks of conformity granted
M1	MOTOR	PD-35B	0.75kW/415V 50Hz/3PH	1	EN60034-1	
KA1	MAGNETIC CONTACTOR	CU-11	415V/24A	1	EN60947-4-1	CSA CE UL
FR	SERIES OVERLOAD RELAY	RHU-10K1	2.3-3.2A	1	EN60947-4-1	CSA CE UL
SQ1	LIMIT SWITCH	VS10N	AC 250V 10A	1	EN61058-1	
SQ2	MICRO SWITCH CHUCK GUARD	VS10N	AC 250V 10A	1	EN61058-1	
SB1	PUSH BUTTON	ABF-22-1A	INO AC 250V, 3A	1	EN 60947-5-1	
SB2	EMERGENCY STOP	ALEPB25-1/C	INC AC 250V, 3A	1	IEC 144	CSA CE LR108205-2
SA	CAM SWITCH	AC-22A	AC600V 20A	1	IEC 60947-3	CSA CE UL

§11. Mechanical component part list



PD-35B



PD-35 / PD-35B

PARTS LIST

1	BASE
2	COLUMN HOLDER
3	COLUMN
4	BOLT
4-1	SPRING WASHER
5	TABLE BRACKET
6	GEAR
7	SHAFT
8	WORM
9	TABLE HANDLE
10	SET SCREW
11	TABLE ARM BRACKET
12	BOLT
12-1	SPRING WASHER
13	PIN
14	SCALE
15	ANGLE SCALE
16	CLAMP BOLT
17	TABLE BOLT
18	TABLE SWIVEL TYPE
19	RACK
20	RACK RING
21	SET SCREW
22	HEAD BODY
23	SET SCREW
26	SHAFT
27	SHIFTER
28	SET SCREW
29L	SLIDE BAR (L)
29S	SLIDE BAR (S)
30	LEAD BOLT
30-2	SCALE RING BOLT
31	MOTOR BASE
32	SPRING WASHER
33	NUT

17

34	HANDLE BODY
35	FEED SHAFT
36	ROLL PIN
40	FEED HANDLE
41	GRIP
42	SCALE RING
44	SCALE
45	RIVET
46	SPRING
47	SPRING CAP
48	PIN
49	NUT
49-1	FEED SHAFT COVER
50	SCREW
51	NUT
52	QUILL
53	RUBBER WASHER
54	SPINDLE
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
67	DRILL SHIFTER
68	MOTOR
69	MOTOR WIRE
70	BOLT
71	WASHER
72	NUT
73	MOTOR PULLEY
74	HEADLESS SET SCREW

75	BUSH
76	WIRE
76B	WIRE
77	WIRE CONNECTOR
78	SWITCH
78B	CAM SWITCH (For PD-35B)
79B	SWITCH COVER (For PD-35B)
80	SCREW
81	PULLEY COVER
82	WASHER
83	SCREW
84	PULLEY COVER SCREW
85	PULLEY COVER KNOB
86	PULLEY SHAFT
87	BALL BEARING
88	PULLEY SHAFT
89	V-BELT
90	ALLEN WRENCH (L)
91	ALLEN WRENCH (S)
92	MICRO SWITCH
92-1	SCREW
92-2	NUT
93	MICRO SWITCH BOX
93-1	SPRING SHEET
94	PRESSING PLATE
95	MICRO SWITCH WIRE
96	SCREW
97	NUT
98	WIRE CONNECTOR
99	NUT
100	SCREW
101	MICRO SWITCH BRACKET
101A	MICRO SWITCH
101B	MICRO SWITCH BOARD COVER
101C	MICRO 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 SWITCH
104-1	SWITCH COVER
104-3	RUBBER SHEET
108	MAGNETIC CONTACTOR (For PD-35B)



General Machinery Safety Instructions

Machinery House
requires you to read this entire Manual before using this machine.

- 1. Read the entire Manual before starting machinery.** Machinery may cause serious injury if not correctly used.
- 2. Always use correct hearing protection when operating machinery.** Machinery noise may cause permanent hearing damage.
- 3. Machinery must never be used when tired, or under the influence of drugs or alcohol.** When running machinery you must be alert at all times.
- 4. Wear correct Clothing.** At all times remove all loose clothing, necklaces, rings, jewelry, etc. Long hair must be contained in a hair net. Non-slip protective footwear must be worn.
- 5. Always wear correct respirators around fumes or dust when operating machinery.** Machinery fumes & dust can cause serious respiratory illness. Dust extractors must be used where applicable.
- 6. Always wear correct safety glasses.** When machining you must use the correct eye protection to prevent injuring your eyes.
- 7. Keep work clean and make sure you have good lighting.** Cluttered and dark shadows may cause accidents.
- 8. Personnel must be properly trained or well supervised when operating machinery.** Make sure you have clear and safe understanding of the machine you are operating.
- 9. Keep children and visitors away.** Make sure children and visitors are at a safe distance for you work area.
- 10. Keep your workshop childproof.** Use padlocks, Turn off master power switches and remove start switch keys.
- 11. Never leave machine unattended.** Turn power off and wait till machine has come to a complete stop before leaving the machine unattended.
- 12. Make a safe working environment.** Do not use machine in a damp, wet area, or where flammable or noxious fumes may exist.
- 13. Disconnect main power before service machine.** Make sure power switch is in the off position before re-connecting.
- 14. Use correct amperage extension cords.** Undersized extension cords overheat and lose power. Replace extension cords if they become damaged.
- 15. Keep machine well maintained.** Keep blades sharp and clean for best and safest performance. Follow instructions when lubricating and changing accessories.
- 16. Keep machine well guarded.** Make sure guards on machine are in place and are all working correctly.
- 17. Do not overreach.** Keep proper footing and balance at all times.
- 18. Secure workpiece.** Use clamps or a vice to hold the workpiece where practical. Keeping the workpiece secure will free up your hand to operate the machine and will protect hand from injury.
- 19. Check machine over before operating.** Check machine for damaged parts, loose bolts, Keys and wrenches left on machine and any other conditions that may effect the machines operation. Repair and replace damaged parts.
- 20. Use recommended accessories.** Refer to instruction manual or ask correct service officer when using accessories. The use of improper accessories may cause the risk of injury.
- 21. Do not force machinery.** Work at the speed and capacity at which the machine or accessory was designed.
- 22. Use correct lifting practice.** Always use the correct lifting methods when using machinery. Incorrect lifting methods can cause serious injury.
- 23. Lock mobile bases.** Make sure any mobile bases are locked before using machine.
- 24. Allergic reactions.** Certain metal shavings and cutting fluids may cause an allergic reaction in people and animals, especially when cutting as the fumes can be inhaled. Make sure you know what type of metal and cutting fluid you will be exposed to and how to avoid contamination.
- 25. Call for help.** If at any time you experience difficulties, stop the machine and call you nearest branch service department for help.



Drilling Machine Safety Instructions

Machinery House
requires you to read this entire Manual before using this machine.

- 1. Maintenance.** Make sure the Drill is turned off and disconnect from the main power supply and make sure all moving parts have come to a complete stop before any inspection, adjustment or maintenance is carried out.
- 2. Drill Condition.** Drill must be maintained for a proper working condition. Never operate a Drill that has damaged or worn parts. Scheduled routine maintenance should be performed on a scheduled basis.
- 3. Leaving a Drill Unattended.** Always turn the Drill off and make sure all moving parts have come to a complete stop before leaving the Drill. Do not leave Drill running unattended for any reason.
- 4. Avoiding Entanglement.** Remove loose clothing, belts, or jewelry items. Never wear gloves while machine is in operation. Tie up long hair and use the correct hair nets to avoid any entanglement with the Drill spindle or moving parts.
- 5. Chuck key & wrench safety.** Always remove chuck keys, wrenches and any service tools immediately after use. Chuck keys left in the chuck can cause serious injury.
- 6. Understand the machines controls.** Make sure you understand the use and operation of all controls.
- 7. Drill bit selection.** Always use the correct Drill bit for the job you are Drilling. Make sure you use the correct shank drill bit for your drilling machine.
- 8. Secure the Drill Bit.** Properly tighten and securely lock the drill bit in the chuck.
- 9. Cutting Tool inspection.** Inspect Drill for sharpness, chips, or cracks before use. Replace any cutting tools immediately if dull, chipped or cracked. Handle new cutting tools with care. Cutting edges are very sharp and can cause lacerations.
- 10. Reversing the spindle.** Make sure the spindle has come to a complete stop before changing the direction of the spindle.
- 11. Stopping the spindle.** Do not slow or stop the spindle by using your hand.
- 12. Speed selection.** Select the appropriate speed for the type of work, material, and tool bit. Allow the Drill to reach full speed before beginning a cut.
- 13. Changing Belts for speed selection.** Always allow the machine to come to a complete stop and turn power off before changing belts. Not turning power off when changing belts can cause serious injury.
- 14. Clearing chips.** Always use a brush to clear chips. Never clear chips when the drill is running.
- 15. Power outage.** In the event of a power failure during use of the drill, turn off all switches to avoid possible sudden start up once power is restored.
- 16. Clean work area.** Keep the area around the drill clean from oil, tools, chips.
- 17. Surface/workpiece area.** Before turning the drill on, make sure the table is clear of any objects (tools, scraps, off-cuts etc.) Do not drill material that does not have a flat surface unless a suitable support is used.
- 18. Table Lock.** Make sure the table is tightened before starting the drill.
- 19. For - Radial Drill Arm Lock.** Make sure the arm is locked before leaving or starting a radial arm drill. An unlocked radial drill arm can swing and cause serious injury.
- 20. Drilling Sheet metal.** All sheet metal should be clamped to the table before drilling.
- 21. Mounting workpieces.** Use clamps or vices to secure workpiece before drilling. Position work so you avoid drilling into table.
- 22. Guarding.** Do not operate the drill when chuck guard is removed.
- 23. Eye and hand protection.** A face shield with safety glasses is recommended. Always keep hands and fingers away from the drill bit. Never hold a workpiece in your hand while drilling. Do not wear gloves while operating the drill.
- 24. Drill operation.** Never start the drill with the drill bit pressed against the workpiece. Feed the drill evenly into the workpiece. Back the drill out of deep holes. Turn the machine off and clear chips and scrap pieces with a brush. Turn power off, remove drill bit, and clean the table before leaving the machine.
- 25. Call for help.** If at any time you experience difficulties, stop the machine and call your nearest branch service department for help.

PLANT SAFETY PROGRAM

NEW MACHINERY HAZARD IDENTIFICATION, ASSESSMENT & CONTROL

Drilling Machine

Developed in Co-operation Between A.W.I.S.A and Australia Chamber of Manufactures
This program is based upon the Australian Worksafe Standard for Plant(NOHSC:1010-1994)

Item No.	Hazard Identification	Hazard Assessment	Risk Control Strategies <small>(Recommended for Purchase / Buyer / User)</small>
A	ENTANGLEMENT	HIGH	Eliminate, avoid loose clothing / Long hair etc.
B	CRUSHING	LOW	Secure & support work material on drill table.
C	CUTTING, STABBING, PUNCTURING.	MEDIUM	Isolate power to machine prior to any checks or maintenance being carried out. Do not adjust or clean until the machine has fully stopped.
D	SHEARING	MEDIUM	Isolate power to machine when changing speeds or maintenance is being carried out. Make sure all guards are secured shut when machine is on.
F	STRIKING	MEDIUM	Ensure workpieces are tightly secured on machine. Wear safety glasses. For Radial Arm Drills ensure that arm is locked before drilling. Ensure correct spindle direction when drilling..
H	ELECTRICAL	MEDIUM	All electrical enclosures should only be opened with a tool that is not to be kept with the machine. Never clean or dust machine when power is on. Machine should be installed & checked by a Licensed Electrician.
M	HIGH TEMPERATURE	LOW	Wear appropriate protective clothing to prevent hot swarf.
O	OTHER HAZARDS, NOISE.	LOW	Wear hearing protection as required.
Plant Safety Program to be read in conjunction with manufactures instructions			



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Authorised and signed by:
Safety officer:

Manager:

Revised Date: Aug-08

[Signature]