

TB-16V Drill Press

Owners Manual

● THE SAFETY POINTS ●

BEFORE PUT IN USE, IT MUST BE UNDERSTOOD!

Before the **DRILL PRESS** is intended to use, the accessories like the Instruction Manual is with the machine system, it must be read perfectly. The Manual offers the operation safe condition. To follow the correct and safe operation in the Instruction Manual ; and there are two safety points condition, it is different from : Refer to the below instruction:



When we operate uncorrectly, it is occurred to dangerous condition. And it will lead to serious injury and dead.



When we operate uncorrectly, it is occurred to dangerous condition. And it will lead to injury and machine system is broken.



Instruction for safe use in production.



Intend use :

The **DRILL PRESS** is designed to execute drilling. It is dangerous when it is in work. Because it work in high rotation speed, may be some hazards will happen such as entanglement, shearing, ejection partsetc. We suggest customers that must use it with guards to prevent any hazards.


AND " Please think about safety warnings in the instruction manual before putting it in use "

1. FOR SAFE OPERATION

For your own safety read the instruction manual before operating DRILL PRESS.

 DANGER	
HIGH VOLTAGE TURN OFF THE POWER BEFORE SERVICE	
<ol style="list-style-type: none">1. SWITCH the POWER OFF before setting, inspecting, lubricating, cleaning or changing the drill.2. To wear the eye protection.3. Do not wear gloves, necktie or loose clothing.4. To clamp workpiece or brace against column to prevent rotation.5. To use recommended speed for drill accessory, and workpiece material.	

2. GENERAL SAFETY INSTRUCTION

 WARNING	GENERAL SAFETY INSTRUCTION
<ol style="list-style-type: none">1. Keep guards in place and in working order.2. Remove adjusting key and wrenches. From habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.3. Keep work area clean. Cutter area and benches invite accidents.4. Do not use in dangerous environment. Do not use power tools in damp or wet locations or expose them to rain. Keep work area well lighted.5. All visitors should be kept safe distance from work area.6. Make workshop kid proof with padlocks, master switches, or by removing starter key.7. Do not force tool. It will do the job better and safer at the rate for which it was not designed.	

WARNING


GENERAL SAFETY INSTRUCTION

8. Use right tool. Do not force tool on attachment to do a job for which it was not designed.
9. Wear proper apparel. No loose clothing, gloves, necktie, rings or other jewelry to get caught in moving parts. Nonslip footwear is recommended. Wear protective hair covering to contain long hair.
10. Always use safety glasses. Also use face or dust mask if cutting operation is dust. Everyday eyeglasses only have impact resistant lenses, they are not safety glasses.
11. Secure work. Use clamps or a vise to hold work when practical. It's safer than using your hand and it frees both hands to operate tools.
12. Do not overreach. Keep proper footing and balance at all times.
13. Maintain tools with care. Keep tools sharp and clean for best and safest performance.
14. Disconnect tools before servicing, when changing accessories such as blades, bits, cutter ... etc.
15. Reduce the risk of unintentional starting. Make sure switch is in off position before plugging in.
16. Use recommended accessories. Consult the owner's manual for recommended accessories. The use of improper accessories may cause risk of injury to persons.
17. Never stand on tool. Serious injury could occur if the tool is unintentionally contracted.
18. Check damaged parts. Before further use of tool, a guard or other part that is damaged should be carefully checked to determine 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 affect its operation. A guard or other parts that is damaged should be properly repaired or replaced.
19. Direction of feed. Feed work into a blade or cutter against the direction of rotation of the blade or cutter only.
20. Never leave tool running unattended. Turn power off. Do not leave tool until it comes to a complete stop.


3. SAFETY INSTRUCTIONS FOR DRILL PRESS

CAUTION	SAFETY INSTRUCTIONS FOR DRILL PRESS
<ol style="list-style-type: none">1. Wear eye protection.2. Do not wear gloves, necktie, rings or loose clothing.3. Clamp workpiece or brace against column to prevent rotation.4. Use recommended speed for drill accessories and workpiece materials.5. Be sure drill bit or cutter tool is securely locked in the chuck.6. Be sure chuck key is removed from the chuck before turning on power.7. Adjust the table or depth stop to avoid drilling into the table, shut off the power. Remove the drill bit on cutting tool, and clean the table before leaving the machine.8. Do not operate until it is completely assembled and installed according to the Instructions.9. If any part of your drill press is malfunction or has been damaged or broken, do not operate until the part is properly repaired or replaced.10. Never place your fingers in a position where they could contact the drill or other cutting tool if the workpiece should unexpectedly shift.11. Never use your hand to hold on the object while drilling, always screw the object tight on the working table or use the drill vise to prevent accident injury.12. Never perform any operation by moving the head or table with respect to one another. Do not pull the motor switch " ON " or " I " or start any operation before checking the head and table lock handle are clamped tight to column, and head and table support collars are correctly positioned.13. Before pulling the power switch " ON " and " I " be positive the belt cover is down the chuck is in installed properly.14. Lock the motor switch when leaving the drill press. Do not perform layout, assembly or setup work on the table while the cutting tools rotating.	

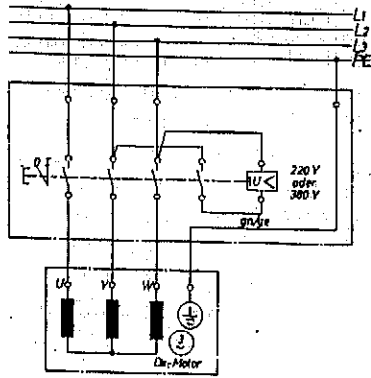
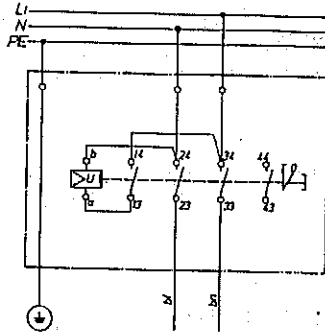
4. VOLTAGE WARNING

 WARNING	VOLTAGE WARNING
<ol style="list-style-type: none">1. Before connecting the tool to a power source (receptacle, outlet ... etc.)2. A power source with voltage greater than that specified for the tool can result in serious injury to the user.3. If you are unsure of the voltage rating do not use tool. Also using a power source with voltage less than that of the tool will harm the motor.	

5. GROUNDING INSTRUCTION

 CAUTION	GROUNDING INSTRUCTION
<ol style="list-style-type: none">1. In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This tool is equipped with an electric cord having an equipment grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that it is properly installed and grounded in accordance with all local codes and ordinances.2. Do not modify the plug provided. If it will not fit the outlet, have the proper outlet installed by a qualified electrician.3. Improper connection of the equipment grounding can result in a risk of electric shock. The conductor with insulation having an outer surface that is green with yellow stripes is equipment grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment grounding conductor to a live terminal.4. Check with a qualified electrician or serviceman if the grounding instructions are not completely understood, or if in doubt as whether the tool is properly grounded.5. Use only 3-wire extension cord that have 3-prong grounding plug and 3-pole receptacles that accept the tool's plug.6. Repair or replace damage or worn cord immediately.	

6. CIRCUIT DIAGRAMS


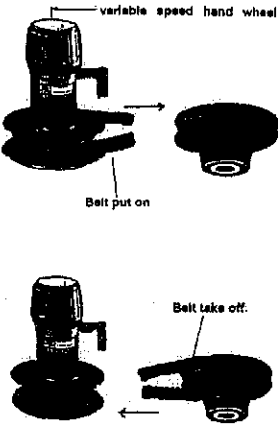


CAUTION

NOTE :

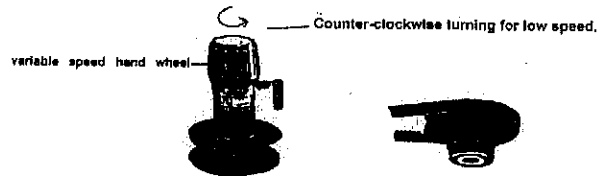
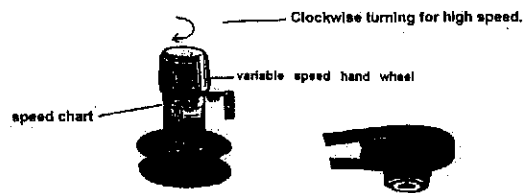
For your own safety, the user's circuit breaker capacity is not less than 16 Ampere.

7. OPERATION (PROCEDURE)

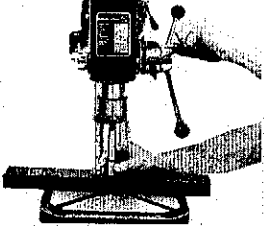
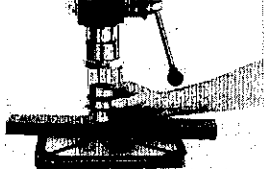
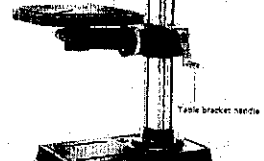
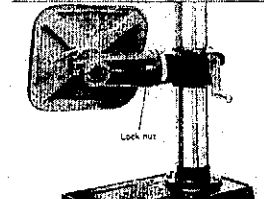
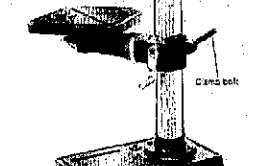
OPERATION :	 CAUTION
<ol style="list-style-type: none">1. Never turn the variable speed hand wheel when machine in stop position.2. Close well pulley cover before machine is started to prevent danger.3. Do not change the distance between spindle pulley and motor pulley.	
	<ol style="list-style-type: none">1. BELT INSTALL:<ol style="list-style-type: none">A) Belt put on :<ol style="list-style-type: none">a) Turn the variable speed hand wheel clockwise direction to open the groove of spindle pulley.b) Put the belt on the pulley from spindle pulley to motor pulley.c) Turn the motor pulley by handle to tension the belt.B) Belt take off:<ol style="list-style-type: none">a) Grasp the belt by hand to loose the belt.b) Take off the belt from motor pulley direction.
<ol style="list-style-type: none">2. SPEED ADJUSTMENT :<ol style="list-style-type: none">A) Spindle speed:<ol style="list-style-type: none">a) The power of spindle revolution comes from spindle pulley and motor pulley for driving.	

Following next page.

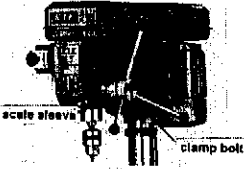
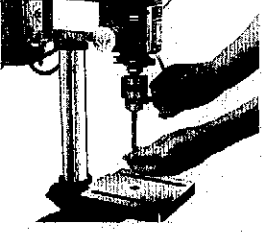
- b) The design of spindle and motor pulley are stepless variable speed drive, therefore, the speed change only turn the variable speed hand wheel, no need to stop machine change belt.
- c) Turn the variable speed hand wheel change speed :
Clockwise turning for high speed.
Counter-clockwise turning for low speed.
Please see speed chart on variable speed hand wheel to choose proper speed.
- d) Keep stable tension for belt to avoid slip and extend belt life.



Following next page.

	<p>Insert arbor into spindle pull feed handle down to press arbor in place.</p> <p>NOTE : Clean out the spindle hole, arbor and tapered hole in the chuck with a clean cloth before insert arbor and chuck.</p>
	<p>Open chuck jaws completely by turning attached chuck key counter-clockwise to the end. Install chuck to the arbor tightly. (put a piece of wood on the table to protect chuck nose)</p>
	<p>Table height adjustment to adjust up or down, loosen the clamp bolt then adjust the table to your desired position by turning the table bracket handle.</p>
	<p>TILTING ADJUSTMENT</p> <p>Loosen the table level lock bolt with adjustable wrench. Tilt table to your desired angle and retighten the bolt.</p>
	<p>SWING 360° DEGREE</p> <p>Loosen clamp bolt then swing table to appropriate position and retighten bolt.</p>

Following next page.

 <p>A close-up diagram of the depth control mechanism on a drill press. It shows a vertical scale sleeve with a clamp bolt that secures it to the drill press body. Labels 'scale sleeve' and 'clamp bolt' point to their respective parts.</p>	<p>FEED DEPTH ADJUSTMENT</p> <p>Depth control scale sleeve type. Loosen the clamp bolt and move to desire depth then retighten the clamp bolt.</p>
 <p>A diagram showing a hand using a chuck key to tighten the jaws of a drill press chuck. A drill bit is already partially inserted into the chuck. The hand is positioned to turn the key to secure the bit.</p>	<p>INSTALLING DRILL BITS</p> <p>Insert drill bits into chuck jaws about 1" (25.4mm) long. When using a small drill bit do not insert it so far that the jaws touch the flutes of the drill bit. Make sure that the drill bit is centered in the chuck before tightening the chuck with the key.</p>

8. MAINTENANCE

MAINTENANCE I



1. Frequency blow out any dust that may accumulate inside the motor.
2. A coat of automobile type wax applied to the table and column will help to keep the surface clean.
3. If the power cord is worn or cut, or damaged in any way, have it replaced immediately.
4. All of the ball bearing are packed with grease at the factory. They require no further lubrication.
5. Periodically lubricate the gear and rack table elevation mechanism, the SPINDLE (grooves) in the spindle, and the RACK (teeth on the quill).
6. After use the machine you have to clean it completely and lubricate all sliding moving parts. For your own safety, turn switch "OFF" or "I" and remove plug from power source outlet before maintaining or lubricating your drill press.

9. INSTALLATION

INSTALLATION I



1. When transport the machine, please be attention that you have always to ask two people at least to carry it.
2. After installing the drill press, use the kerosene to wash out the anti-rust oil which have been coated in the factory. Then wipe it with lubricant oil.
3. Install your drill press in flate, sturdy floor or surface, and fixed it on the ground by screw.

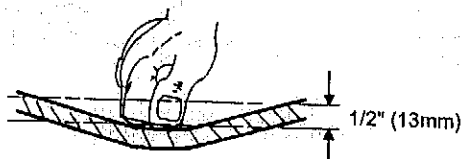
10. The proper drill speed for a given drill bit size is as on following table :

SIZE		Cast steel		Tool steel		Cast Iron		Mild steel		Alum & Copper	
Diameter		Cutting speed									
		m/min	f/min	m/min	f/min	m/min	f/min	m/min	f/min	m/min	f/min
		12	40	18	60	24	80	30	100	60	200
mm	inch	Cutting speed revolution per minute									
2	1/16	1,910	2,445	2,865	3,665	3,820	4,890	4,775	6,110	9,550	12,225
3	1/8	1,275	1,220	1,910	1,835	2,545	2,445	3,185	3,055	6,365	6,110
6	3/16	785	815	1,145	1,220	1,530	1,630	1,910	2,035	3,820	4,075
6	1/4	610	610	955	915	1,275	1,220	1,590	1,530	3,180	3,055
8	5/16	480	490	715	735	955	980	1,195	1,220	2,390	2,445
10	3/8	380	405	570	610	765	815	955	1,020	1,910	2,035
11	7/16	350	350	520	525	700	700	870	870	1,740	1,745
13	1/2	300	305	440	460	590	610	735	765	1,470	1,530
16	5/8	240	245	360	365	480	490	600	610	1,200	1,220
19	3/4	190	205	285	305	380	405	480	510	955	1,020

**BELT TENSION
ADJUSTMENT**

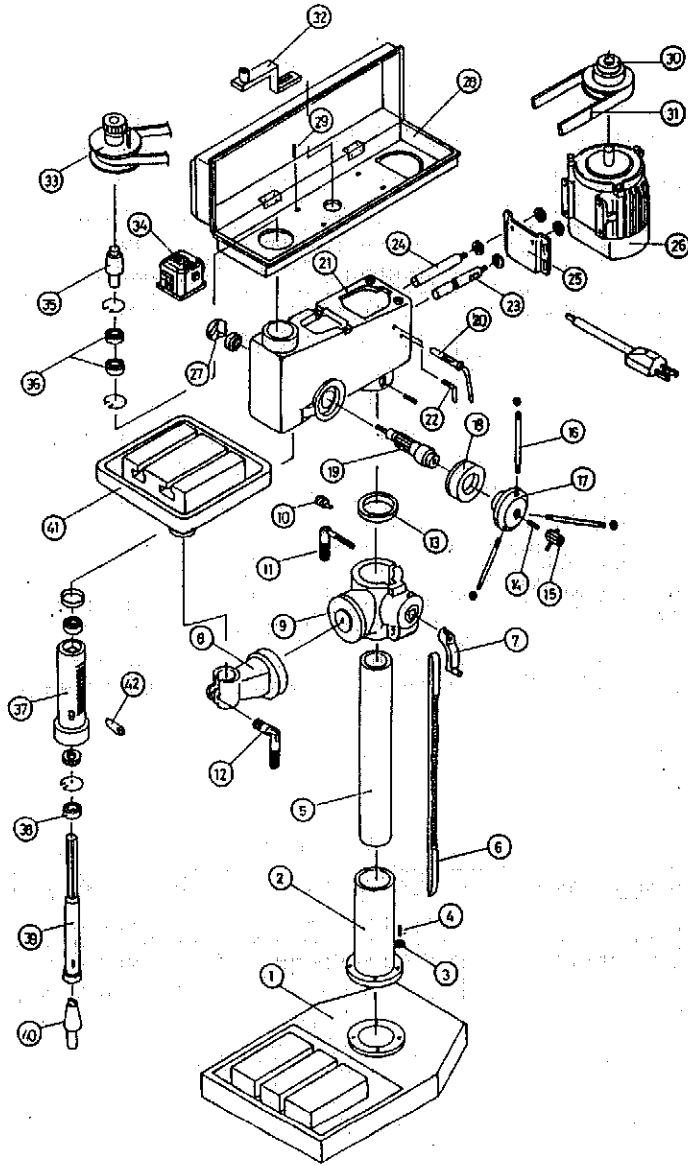


For proper belt tension : Use 10 lbs pressure or hand pressure on the belt as shown below. The distance is 1/2" (13mm) ± 10 %.



11. TROUBLE SHOOTING

★ Trouble ★	★ Trouble cause ★	◎ Measures ◎
1 Noisy operation	<ol style="list-style-type: none"> 1. Incorrect belt tension. 2. Dry spindle. 3. Loose spindle pulley or motor pulley. 	<ol style="list-style-type: none"> 1. Adjust tension. 2. Lubricate spindle. 3. Tighten set screws in pulleys.
2 Bit burns or smokes	<ol style="list-style-type: none"> 1. Incorrect speed. 2. Chips not coming out of hole. 3. Dull bit. 4. Feeding too slow. 5. Not lubricated. 6. Bit running backwards. 	<ol style="list-style-type: none"> 1. Change speed. 2. Retract bit frequently to clear chips. 3. Sharpen or replace bit. 4. Feed fast enough.. allow drill press to cut. 5. Lubricate bit. 6. Check motor rotation.
3 Excessive drill runout or wobble	<ol style="list-style-type: none"> 1. Bent bit. 2. Worn spindle bearing. 3. Bit not properly installed in chuck. 4. Chuck not properly installed. 	<ol style="list-style-type: none"> 1. Use a straight bit. 2. Replace bearing. 3. Install bit properly. 4. Install chuck properly.
4 Drill binds in workpiece	<ol style="list-style-type: none"> 1. Workpiece pinching. Bit or excessive feed pressure. 2. Improper belt tension. 	<ol style="list-style-type: none"> 1. Support or clamp workpiece. 2. Adjust tension.
5 Workpiece torn	<ol style="list-style-type: none"> 1. Not supported or clamped properly. 	<ol style="list-style-type: none"> 1. Support or clamp workpiece.
6 Table difficult to raise	<ol style="list-style-type: none"> 1. Needs lubrication. 2. Bent rack. 3. Table lock tightened. 	<ol style="list-style-type: none"> 1. Lubricate with light oil. 2. Straighten rack. 3. loosen clamp.

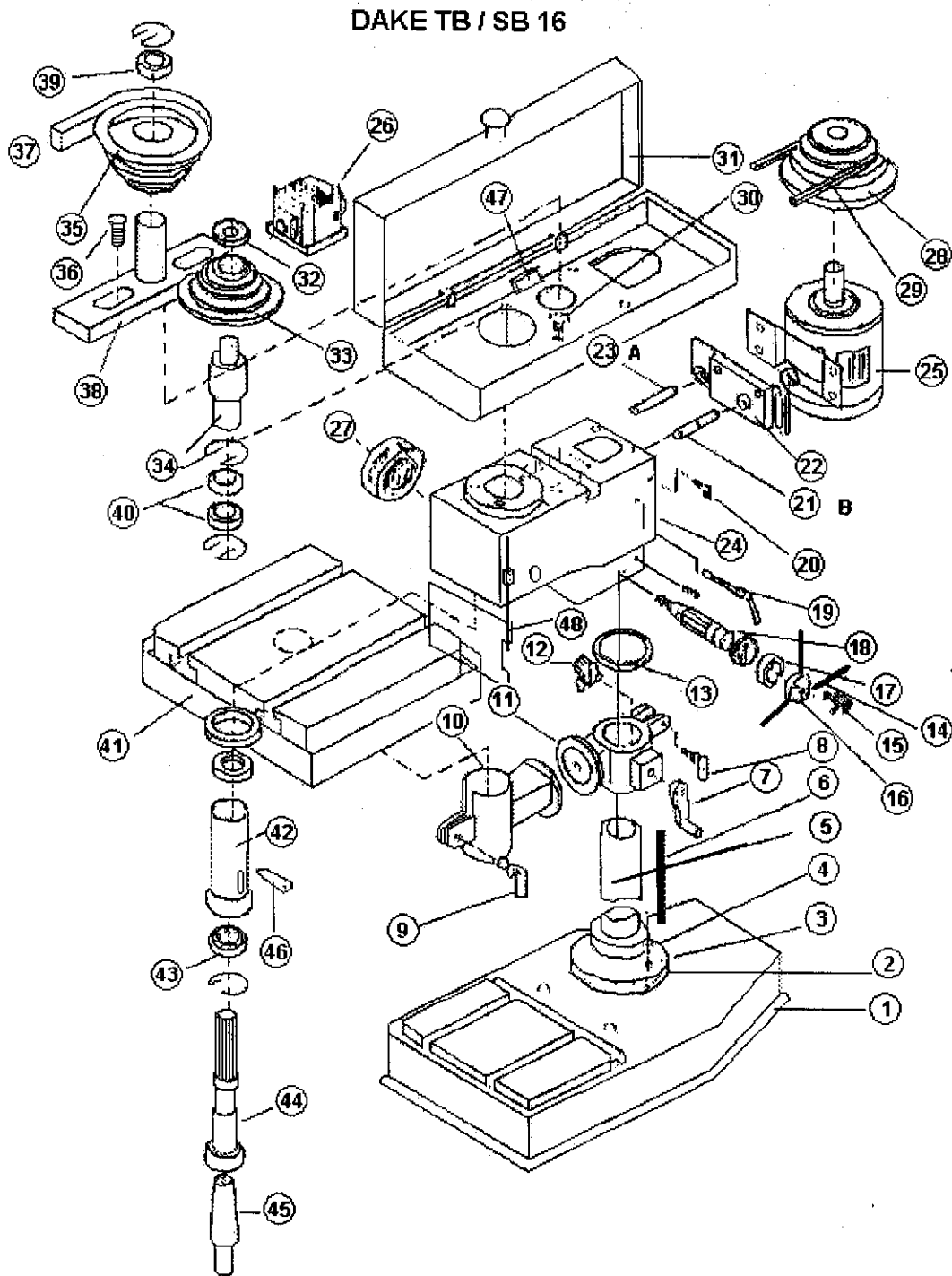


PARTS LIST

NO	PART NAME	NO	PART NAME
1	Base	24	Rod - B
2	Flange	25	Motor Plate
3	Washer	26	Motor
4	Screw	27	Spring & Cup
5	Column	28	Pulley Cover
6	Rack	29	Screw
7	Handle	30	Motor Pulley
8	Table Arm	31	Belt
9	Table Bracket	32	Rod Support
10	Worm	33	Spindle Pulley
11	Clamp Bolt	34	Switch
12	Clamp Bolt	35	Insert Pulley
13	Collar	36	Bearing
14	Screw	37	Quill
15	Clamp Bolt	38	Bearing
16	Handle	39	Spindle
17	Feed Head	40	Arbor
18	Scale Sleeve	41	Table
19	Feed Shaft	42	Wedge
20	Belt Adjust Handle		
21	Head		
22	Wing Bolt		
23	Rod - A		

protection
POSITIONED CHUCK GUARD.

Emergency stop button. Belt cover interlock



PARTS LIST for TB-16 / SB-16

Item No.	Description	TB-16	SB-16	Item No.	Description	TB-16	SB-16
1	Base TB-16	301002	301001	25	Motor	300993	300993
				25A	Motor mounting nuts	302425	302425
2	Flange	301003	301004	26	Switch	301024	301024
3	Spring Washer (4x)	13mm	13mm	27	Spring & Cap Base	301025	301025
4	Screw	300999	300999	28	Motor Pulley	301026	301026
5	Column	301005	301006	29	Belt A28	301027	301027
6	Rack	301007	301007	30	Screw (4x)	300998	300998
7	Handle	301008	301008	31	Pulley Cover	301028	301028
8	Clamp Bolt	301009	301009	32	Insert Pulley Nut	301029	301029
9	Clamp Bolt	301010	301010	33	Spindle Pulley	301030	301030
10	Table Arm	301011	301011	34	Insert Pulley Shaft	301031	301031
11	Table Bracket	301012	301012	35	Middle Pulley	301032	301032
12	Worm	301056	301056	36	Screw & Spring (2x)	301033	301033
13	Collar	301013	301013	37	Belt A23	301093	301093
14	Feed Handle (3x)	301014	301014	38	Middle Pulley Shaft	301034	301034
15	Lock Handle	301015	301015	39	Bearing 6203Z	300987	300987
16	Feed Head	301016	301016	40	Bearing 6203Z	300987	300987
17	Spindle Scale	301017	301017	41	Table	301035	301035
18	Feed Shaft	301018	301018	42	Quill 1.85"	301036	301036
19	Belt Adjust Handle	301019	301019	43	Bearing 6003Z	300988	300988
20	Wing Bolt	301077	301077	44	Spindle	301037	301037
21	Rod - B	301022	301022	45	Arbor	301038	301038
22	Motor Plate	301021	301021	46	Wedge	301039	301039
23	Road - A	301020	301020	47	Belt Cover Interlock Switch	300992	300992
24	Head	301023	301023	48	Plexiglas Chuck Guard	300997	300997
				N/A	Chuck 13mm	301870	301870
				N/A	Key 13mm	301968	301968