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SB-25V Drill Press

OWNERS MANUAL

FOR YOUR OWN SAFETY AND OPTIMUM OPERATION READ INSTRUCTION MANUAL BEFORE OPERATING DRILL PRESS RETAIN THIS MANUAL FOR FURTHER REFERENCE.

Model: SB-25V

4/1/14

Distributed by: Trick-Tools.com

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MODEL AND SPECIFICATIONS

Machine Specifications:	Model SB-25
Drill Type	Floor
Max. Drill Capacity	1”
Spindle Taper	MT3
Spindle Travel	5”
Max. Work Diameter	18”
Speeds (Step Pulley)	9
Spindle Speed Range	270-2000
Column Diameter	3-5/8”
Table	14 x 14”
Base	23-1/2 x 15”
Spindle to Table	28-1/4”
Spindle to Base	49-1/8”
Motor	2 HP
Voltage	110V
Overall Height	71”
Weight	422 lbs.

Uncrating and installation

1. Location of the drill press should be in a well-lit area with correct power supply.
2. Carefully uncrate machine from crate. Inspect all packing as not to throw out any parts or manuals.
3. When transporting the machine please use caution. If using a sling have someone steady the machine while transporting it.
4. Install your drill press on a sturdy level floor surface. The machine must be anchored to the floor. Machine is top heavy.
5. Connect appropriate power to the machine (see electrical diagram last page of manual). Make sure circuit breakers are suitable for the machine. Consult local codes for proper installation of machine. Always route power cables in a safe manner away from traffic areas, damp areas, heat and moving parts.
6. After installing the drill press, use a degreasing product to clean off the anti-rust oil which was applied at the factory. Then wipe machined surfaces with a light coating of lubricant oil. (Way oil)
7. Check for damaged parts. Before further use of the machine, a guard or other part that is damaged should be replaced or repaired. Carefully check 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 or mountings and any other conditions that affect its operation.

SAFETY

1. Keep guards in place and in working order.
2. Remove adjusting key and wrenches. Be in the habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
3. Keep work area clean. Cluttered areas and benches invite accidents.
4. Do not use in dangerous environments. Do not use power tools in damp or wet locations or expose them to rain. Keep work area well light.
5. Do not force tool. It will do the job better and safer at the rate for which it was designed.
6. Use the right tool. Do not force the tool, or use the machine to do a job for which it was not designed.
7. Wear proper apparel. No loose clothing, gloves, necktie, rings or other jewelry to get caught in moving parts. Non-slip footwear is recommended. Wear protective hair covering to contain long hair.
8. Always use safety glasses. Also use face or dust mask if cutting operation is dusty.
9. Secure work. Use clamps or a vise to hold work. Do not hold part with hands.
10. Do not overreach. Keep proper footing and balance at all times.
11. Maintain tools with care. Keep tools sharp and clean for best and safest performance.
12. Disconnect drill press from power before servicing, when changing accessories such as bits, cutter …etc.
13. Never stand on machine, or serious injury could occur.
14. Never leave machine running unattended.
15. Be sure drill bit or cutter tool is securely locked in the chuck. Do not hold part to be machined in hand.
16. Never place your fingers in a position where they could contact the drill or other cutting tool if the work piece should unexpectedly shift.
17. Never perform any operation by moving the head or table with respect to one another. Do not switch machine on or start any operation before checking that the head and table lock handles are clamped tight to column, and head and table support collars are correctly positioned.

WARNING!!!

Extension cords and surge protectors are not recommended for this product. Ground fault circuit interrupters (GFCI) should not be used. **DO NOT TAMPER WITH WIRING OR SETTINGS INSIDE THE FREQUENCY DRIVE.**

Do not open any cover or remove any guard without proper lockout of equipment. Only a qualified electrician with proper PPE should perform electrical work on this equipment.
Some components in this equipment may store electricity.

BEFORE USE, ALL SAFETY POINTS MUST BE READ AND UNDERSTOOD!

Operation of the drill press incorrectly, or in a dangerous fashion can result in serious injury or death.

Operation of the drill press incorrectly, or in a dangerous fashion can result in damage to machine or its components and to the cutting tool.

Intend use:
The DRILL PRESS is designed to for drilling, boring and tapping operations. Caution is required when operating the drill press because it can be dangerous due to the high spindle rotation speed. Operation hazards such as entanglement, shearing, ejection parts ….etc. Guards such as pulley cover and chuck guard must in place and working condition to prevent any hazard.
Please think about the safety warnings in the instruction manual before operating the machine

Safety stickers

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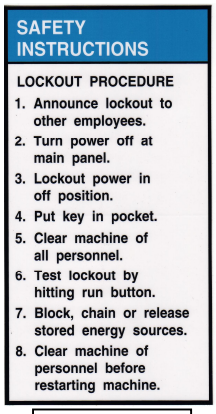

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Familiarize yourself with the controls before operating.

Emergency stop button

When this is pressed the power to the motor and controls is disconnected. The frequency drive stores energy this will remain lit for about 20 seconds.

Spindle direction

Turn the spindle direction switch to the desired direction forward, reverse or stop. If the emergency stop button is pushed or if the power is lost you will have to move this to stop (TO RESET) then to desired spindle direction.

Stop

This is used when you would like the spindle to stop.

Forward

This is used for standard drilling and tapping operations

Reverse

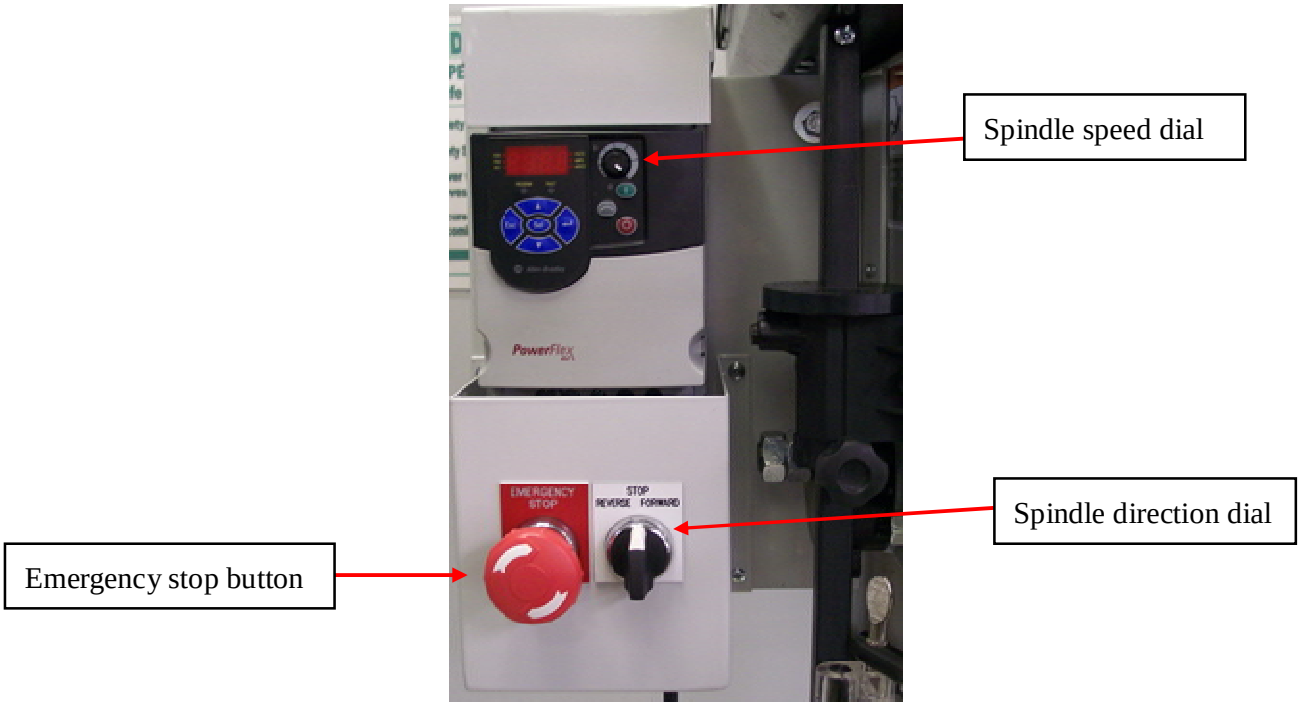
This is used for left hand tapping and to retract a tap during tapping operations.

Spindle speed

The black dial in the upper right hand corner controls the spindle speed. This will change the speed in forward and reverse directions.

Warning!!!

Avoid stopping the motor under load or stalling the motor. This could damage the electrical components.



Tapping operations using the reverse feature

1. Drill the initial hole on the drill press for accuracy of diameter. If the diameter is 1/2 inch or larger, drill a pilot hole about half that diameter first.
2. Make sure the hole has a large enough chamfer. If the chamfer is too small the tap will work a little hard when starting the tapping operation.
3. Select the tap type. Choose from a taper tap (**recommended**), plug tap or bottoming tap. The taper tap has several chamfer threads forming a tapered cone on the inserting end. The plug tap has fewer chamfer threads and a bottoming tap only has a couple chamfer threads.
4. Match the tap size. Use the specified tap size to thread the hole diameter. Taps that are sold with drill bits are size matched for you. The taps themselves may show the hole size they're intended for, but it's likely to be given in metric notation. Use a conversion chart to match this with the inch fractions measuring drill bits.
5. Cut the threads. Lubricate the tap with tapping fluid. Start the drill press and lower the tap gently into the hole to be threaded. It only takes a few seconds to tap a hole. When the tap gets to the desired depth reverse the direction of the spindle and the tap will work its way out. As long as it has been set up properly, the chances are good for success.

Tips for tapping

Tapping is a skill. It takes practice to do it well and to not break taps. If you're new to tapping, practice on sample stock before tapping into your actual project

Materials have differing requirements for drill speed and lubrication. Hole depths and diameters may present additional drilling requirements. Refer to material charts for drilling specifications.

1. OPERATION (PROCEDURE)

DANGER: To show greater detail Chuck guard is in the open position in photos. CHUCK GUARD MUST IN PLACE DURING OPERATION!

Drill / Chuck Installation:

DANGER:
POWER MUST BE OFF BEFORE MAKING ANY ADJUSTMENTS!

TURN POWER OFF! Before inserting drill bits, chucks or arbors, always clean out spindle hole and taper hole with a clean cloth.

Open chuck jaws completely by turning attached chuck key counter-clockwise until the jaws are fully opened.

To install the chuck to the arbor tightly, slide the chuck into the taper forcing it into the spindle with by hand. Place a block of wood on the table then lower the spindle to make contact with the wood and press the chuck tightly into the spindles taper.

Install a taper shaft drill bit into the taper the same way as you would the chuck. If an adaptor is used it must fit the taper correctly and the bit must fit snug in the adaptor.

Table lock

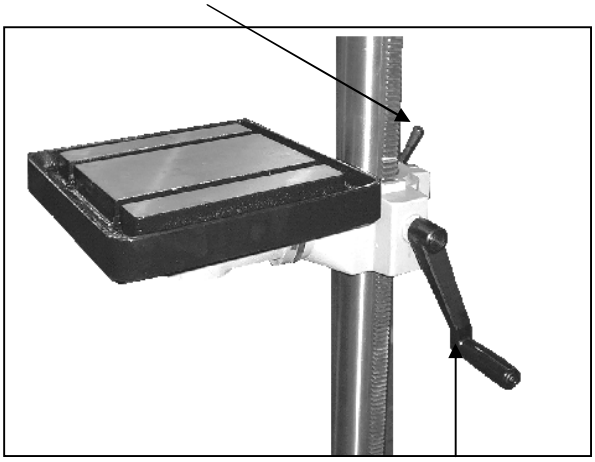


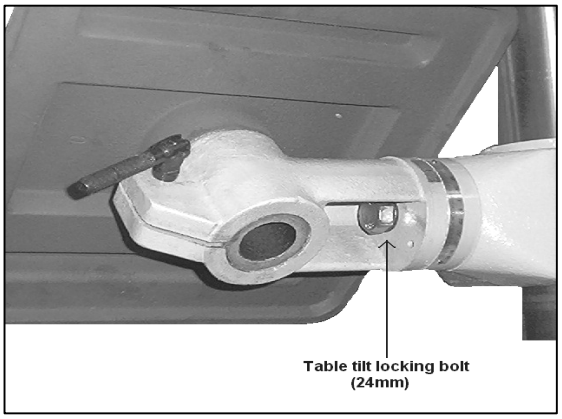
Table handle

Table height adjustment:

Table height adjustment is accomplished by loosening the clamp bolt then adjusting the table with the bracket handle to desired height. After table is at working height, retighten the clamp bolt securely.

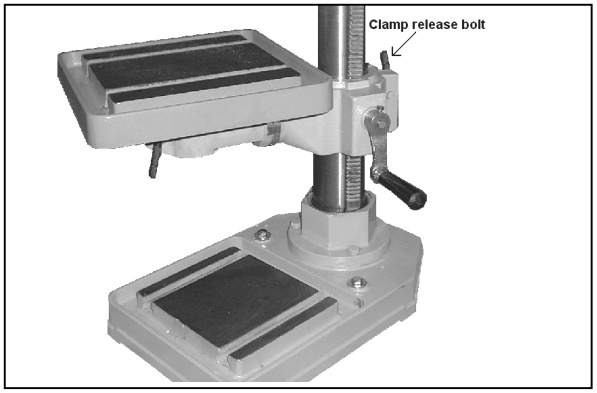
Note: Keep table adjustment rack clean from debris. Never attempt to move table with clamp bolt tightened.

Table tilting adjustment:



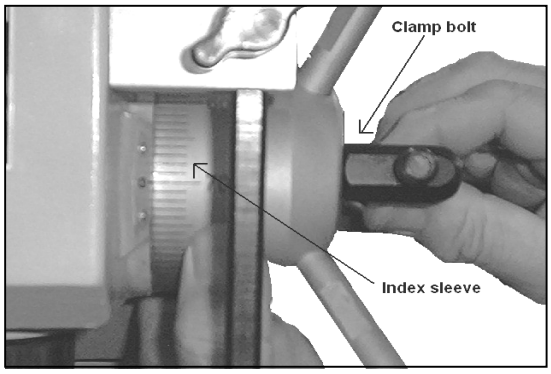
Using an adjustable or box wrench loosen table level lock bolt. Carefully tilt the table to the degree needed, as shown on the angle index scale located on the table rotation point. Retighten nut securely.
Note: Never tilt table if any material or fixturing is on it. Only make adjustments when table is free of loose articles.

Table swing adjustment:



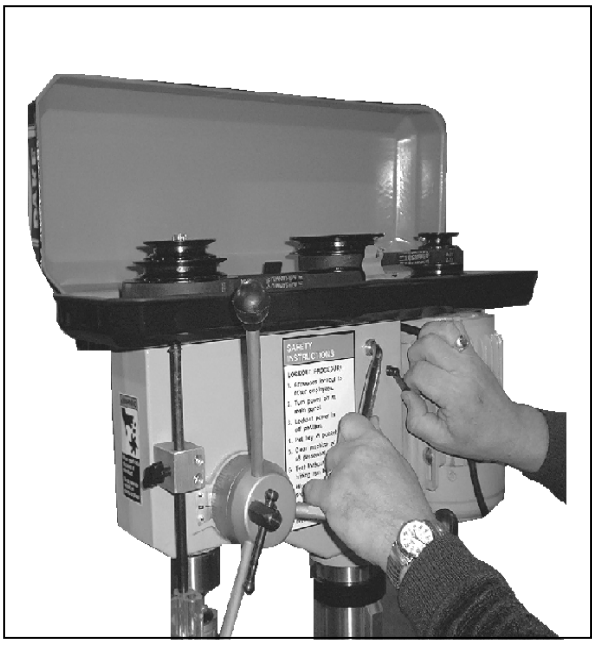
To swing the table up to 360 degrees, loosen the clamp release bolt and swing table to the desired position. After the table is in the correct position tighten clamp release bolt securely.
Note: Never swing table if any material or fixturing is on it. Only make adjustments when table is free of loose articles.

Feed depth adjustment:



Setting the feed depth adjustment is done by loosening the clamp bolt on the spindle depth index sleeve and rotating it to the desired depth.
Retighten clamp bolt securely.
Note: Never make this or other adjustments when machine is running.

DANGER: TURN POWER OFF!
Wait until machine has come to a complete stop before proceeding with speed change!

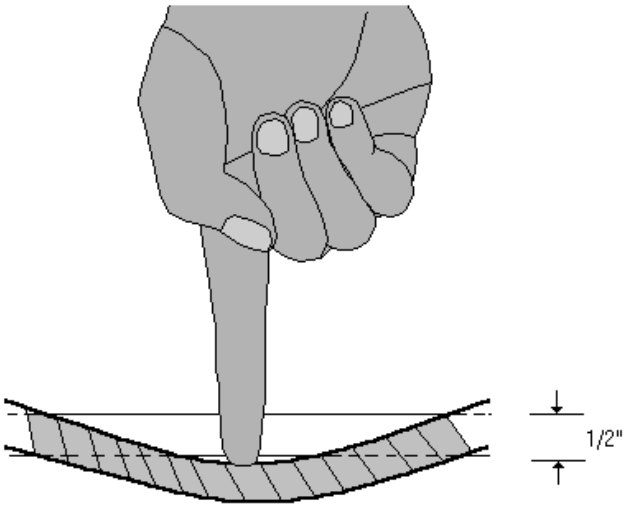


Speed adjustment:

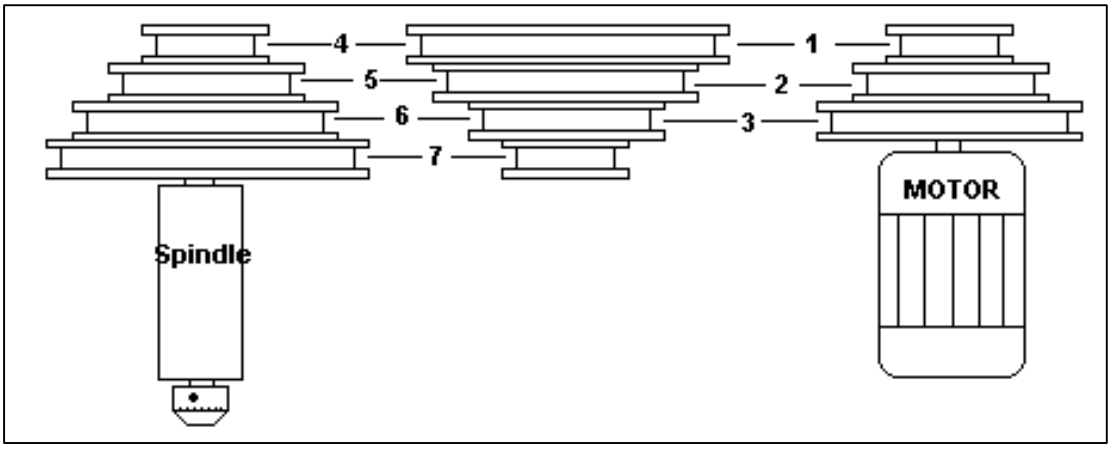
Open the pulley cover to expose the pulleys and drive belts.
Loosen the belt tension lock handles.
Choose the proper speed for the drilling operation. Move the belt to the correct step of the pulleys for the desired speed. (See diagram on page 8) Push the motor backwards until proper belt tension is applied. (1/2" deflection as shown below speed selection chart in this manual)
Retighten belt tension lock handle.
NOTE: If center pulley bracket does not move freely, loosen spring loaded bolts ½ - ¾ turns.

BELT TENSION ADJUSTMENT

Proper belt tension is approx. 10 lbs. of pressure or deflection of about 1/2 "



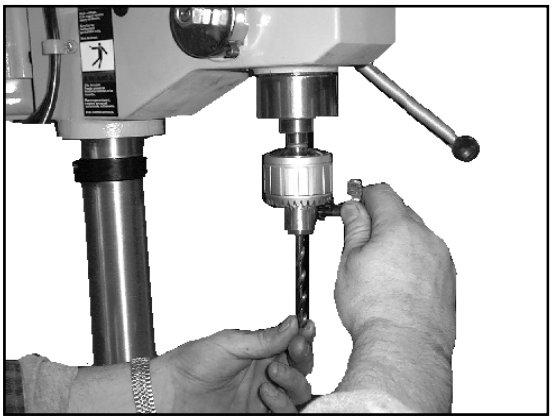
SPEED ADJUSTMENT

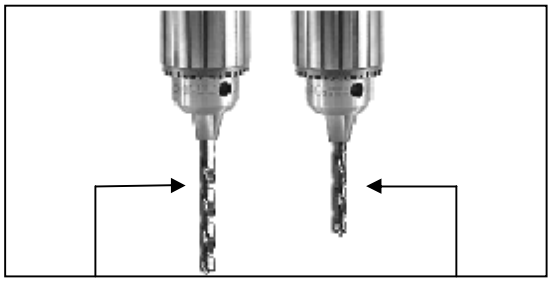


Model:	SB-25V								
Pulley Steps	RPMs @ 10hz	RPMs @ 20hz	RPMs @ 30hz	RPMs @ 40hz	RPMs @ 50hz	RPMs @ 60hz	RPMs @ 70hz	RPMs @ 80hz	RPMs @ 90hz
1 - 7	46	92	133	168	225	264	312	354	397
1 - 6	73	140	206	268	335	408	471	551	602
2 - 7	79	152	225	302	378	457	530	610	680
1 - 5	98	199	305	395	502	593	695	795	888
2 - 6	120	231	348	463	576	690	806	922	1032
3 - 7	128	245	370	476	573	700	872	985	1104
2 - 4	255	509	745	988	1241	1489	1722	1960	2194
3 - 5	287	572	846	1110	1401	1665	1948	2220	2469
3 - 4	415	810	1205	1598	2007	2404	2780	3201	3550

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

Material Type	Cast Steel	Tool Steel	Cast Iron	Mild Steel	Alum. & Copper
	SURFACE FEET PER MINUTE				
	s.f.m.	s.f.m.	s.f.m.	s.f.m.	s.f.m.
Drill Dia.	40	60	80	100	200
Inch	**REVOLUTIONS PER MINUTE**				
1/16	2,445	3,665	4,890	6,110	12,225
1/8	1,220	1,835	2,445	3,055	6,110
3/16	815	1,220	1,630	2,035	4,075
1/4	610	915	1,220	1,530	3,055
5/16	490	735	980	1,220	2,445
3/8	405	610	815	1,020	2,035
7/16	350	525	700	870	1745
1/2	305	460	610	765	1,530
5/8	245	365	490	610	1,220
3/4	205	305	405	510	1,020
7/8	174	261	348	435	762
1	153	229	306	382	668
1-1/8	136	204	272	340	595
1-1/4	122	167	244	306	535





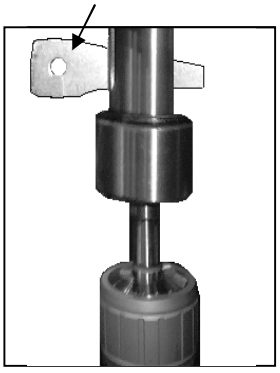
Correct: Jaws contact drill shaft

Incorrect: Jaws contact drill flutes

Installation of drill bits in the chuck:

A drill bit with a shaft of at least 1” long should be used to allow correct chuck jaw contact. If shaft length is less than 1” do not insert bit as far into the chuck where it allows jaw contact with drill flutes.
Center drill bit into the chuck and tighten the chuck securely with the chuck key.
Note: Always use sharp, straight bits.
Never use bits with turned down shafts.
Never exceed the maximum diameter bit size for the machine.
Always wear appropriate clothing while operating the drill press.
All guards and interlocks must be in place when operating the machine.

Wedge removal tool



Tooling removal:

Before removing the chuck or bit from the machine; be sure the spindle has come to a complete stop and power is off. If needed rotate spindle by hand to align the spindle and quill openings. Insert the wedge removal tool, while supporting the tooling tap the wedge to remove the tooling.

Work holding:

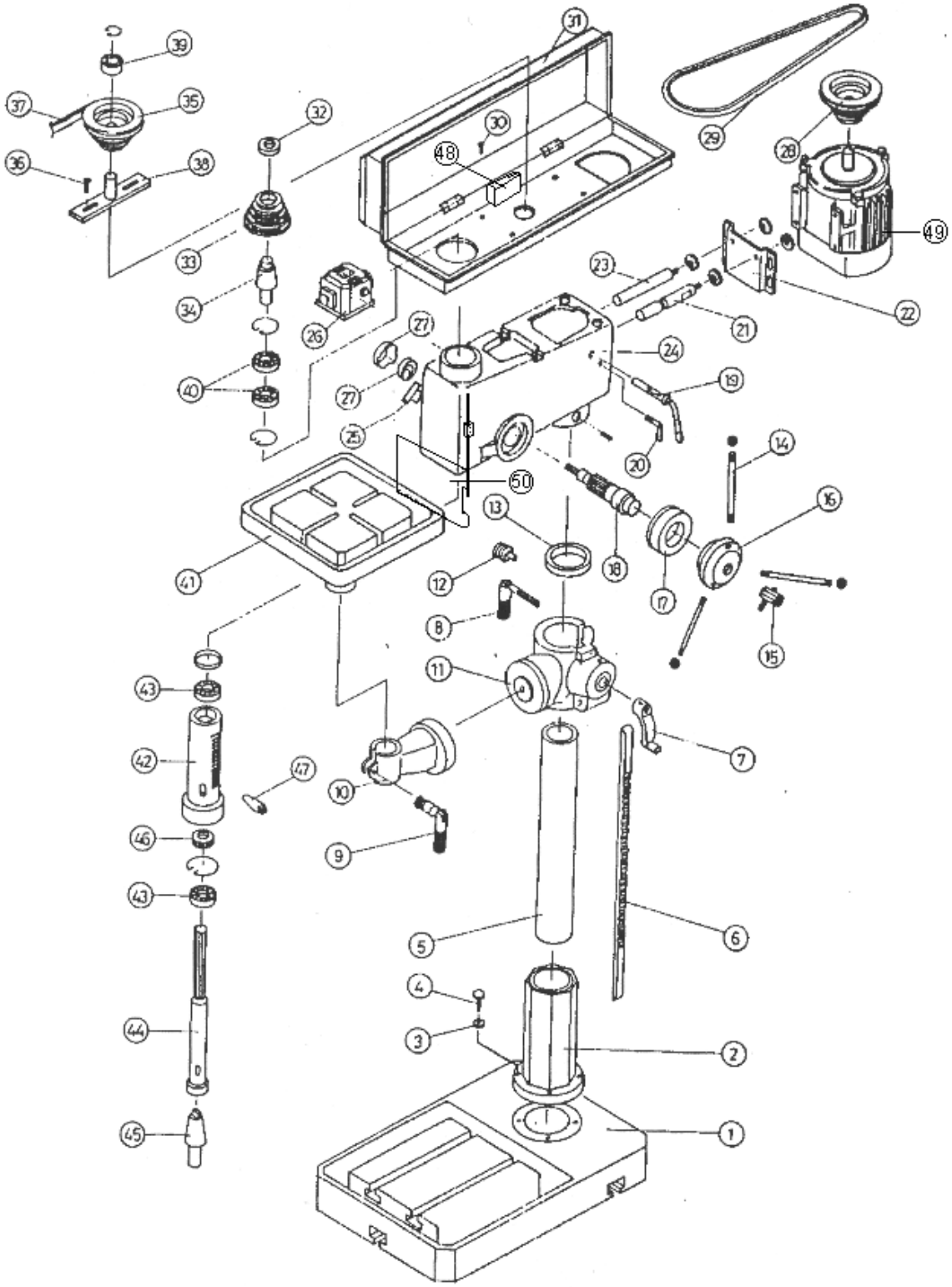
When drilling directly on table surface, it is recommended that a piece of wood or plywood be clamped securely to table under the work piece. This will minimize splintering or burring as the drill breaks through. It will help minimize drill bit and table damage.
Clamp the work piece to the table whenever possible. The table has “T” slots that allow for many different clamping configurations.
When part cannot be affixed to the table a drill vise that is bolted to
Instructions page

2. MAINTENANCE OF MACHINE

MAINTENANCE	 CAUTION

1. On a regular basis blow out any dust that may accumulate inside the motor. (Frequency depends on environment the machine is in)
2. A coat of automotive wax applied to the table and column will help to keep the surface clean.
3. All of the ball bearings are packed with grease at the factory. They require no further lubrication.
4. Periodically lubricate the gear and rack table elevation mechanism, the spindle splines and the rack (teeth on the quill).
5. After each use the machine should be cleaned. Weekly lubrication of all sliding or moving parts with light weight or way oil is recommended. For your own safely, turn switch “OFF” and remove plug from power source outlet before maintaining or lubricating your drill press.

SB 25V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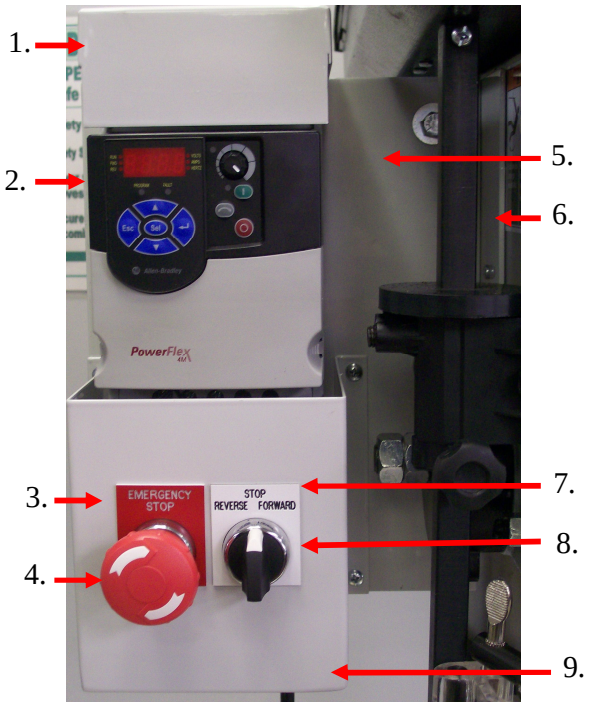
PARTS LIST for SB–25 / SB-32

Item No.	Description	SB-25	SB-32	Item No.	Description	SB-25	SB-32
1	Base	301040	301041	27	Spring & Cap	301063	301064
2	Flange	301042	301043	28	Motor Pulley	301065	301065
3	Spring Washer (4x)	13 mm	13 mm	29	Belt	301066	301066
4	Screw	300999	300999	30	Screw (4x)	300998	300998
5	Column	301044	301045	31	Pulley Cover	301067	301068
6	Rack	301047	301046	32	Insert Pulley Nut	301085	301086
7	Handle	301048	301048	33	Spindle Pulley	301088	301087
8	Clamp Bolt	301049	301049	34	Insert Pulley Shaft	302218	302217
9	Clamp Bolt	301051	301051	35	Middle Pulley	301089	301090
10	Table Arm	301052	301053	36	Screw & Spring (2x)	301092	301092
11	Table Bracket	301055	301054	37	Belt	301093	301093
12	Worm	301056	301056	38	Middle Pulley Shaft	301094	301094
13	Collar	301057	301058	39	Bearing 6203Z	300987	300987
14	Feed Handle (3x)	301059	301059	40	Bearing 6203Z	300987	300987
15	Lock Handle	301070	301070	41	Table	301095	301096
16	Feed Head	301069	301069	42	Quill 25 model 2.42” 32 model 2.98”	301098	301097
17	Spindle Scale	301071	301072	43	6025Z & 6206Z (SB-25) Bearing	300990	300990
18	Feed Shaft	301073	301074		6006Z & 6208Z (SB-32) Bearing	300989	300989
19	Belt Adjust Handle	301075	301076	44	Spindle	301099	301100
20	Wing Bolt	301077	301078	45	Arbor	301101	301102
21	Road - A	301079	301080	46	Seal	N/A	N/A
22	Motor Plate	301081	301081	47	Wedge	301104	301103
23	Road - B	301082	301083	48	Belt Cover Interlock Switch	300992	300992
24	Head	301060	301084	49	Motor	300996	300994
25	Spring Base	N/A	N/A	50	Plexiglas Chuck Guard	300995	300995
26	Switch	301061	301062	N/A	Chuck 16mm	301966	301966
				N/A	Key 16mm	301967	301967

ADDITIONAL PARTS LIST

	Parts list		
Item #	Part name	Part #	Qty.
1	Top cover	87377	1
2	Drive unit	302704	1
3	Name plate emergency stop	301904	1
4	Emergency stop button	716538	1
5	Back mounting plate	87378	1
6	Bracket	87382	1
7	Name plate reverse stop forward	302746	1
8	Selector Switch	302730	1
9	Switch mounting box	87379	1



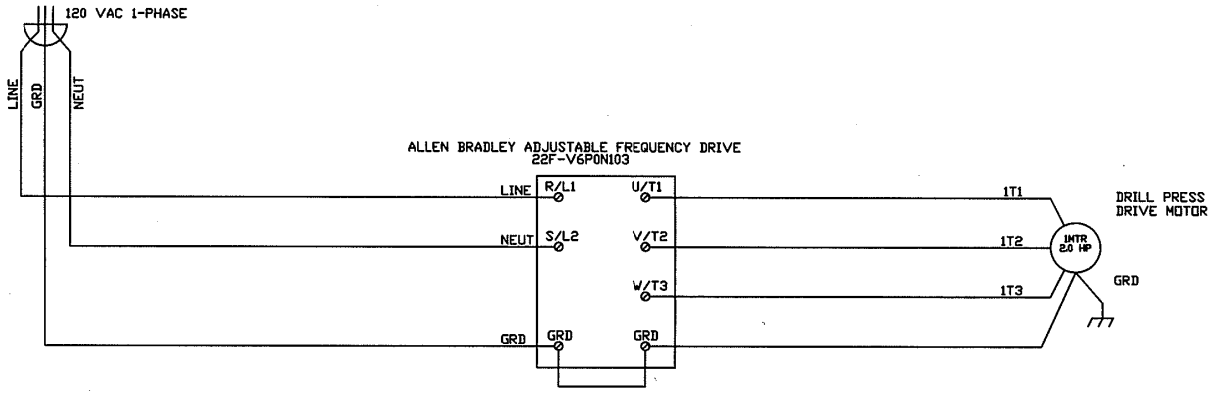
Parts list items not shown		
Part name	Part number	Quantity
Cord set with plug	300529	1
Motor grommet	300540	1
Contact block N.O.	301782	2
Metal latch	301785	1
Cable 4 wire	302683	1
Hex bolt for mounting bracket 5/16-18 x 3/4	43314	2
washer for mounting bracket 5/16 flat	43632	2
Lock washer for mounting bracket 5/16	43644	2
Nut for mounting bracket 5/16-18 heavy	43911	2
Top mounting screws top bracket #10-24 x 1/2	43847	2
Nut for top mounting screws #10-24	43905	2
Screws self-tapping	43881	7
Connector cord	75151	2
Locknut conduit 1/2"	75257	2

TROUBLESHOOTING GUIDE

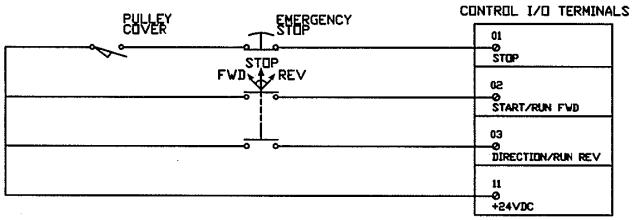
Problem	Possible Cause	Remedy
Machine does not turn on	Not plugged in	Plug into proper receptacle
	Frequency drive has error	Clear error by turning off then back on
	Too long or not correct extension cord	Remove extension cord and plug directly into receptacle
	Emergency stop button is activated	Deactivate emergency button
	Belt cover is operation	Close belt cover
Noisy Operation	Incorrect belt tension	Adjust tension (page 8)
	Loose Spindle or motor pulley	Check for wear or if pulley can be tightened
	Spindle bearing worn	Replace bearing
Chuck or Quill falls out	Rust inhibitor, dirt, debris in or on quill or spindle taper	Clean chuck and quill
Spindle does not move up or down	Belt broken or slipping	Check belt for damage, Check for proper belt tension page 8
	Debris in quill	Clean quill and teeth
	Feed depth adjustment is set	see page 7 for adjustment
Spindle does not rotate	Belt tension not tight enough	Tighten belt tension page 8
	Belt is broken or too worn	Replace belt
	Motor is not rotating	Troubleshoot motor
	Taper is slipping in spindle	Clean chuck and quill

ELECTRICAL WARNING

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 machine is equipped with an electric cord having an equipment grounding conductor. The proper plug must be used that 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 machine is properly grounded.
5. It is <u>not</u> recommended to use an extension cord on this machine. If one must be used, use only a grounded cord of proper size for machine and length of run needed.
6. Repair or replace damaged or worn cords immediately.



REFER TO UNIT OPERATIONS MANUAL
FOR FURTHER INSTALLATION AND PROGRAMMING DETAILS



* SET THE FOLLOWING PARAMETERS TO SHOWN VALUE
ALL OTHER PARAMETERS REMAIN AT FACTORY DEFAULT SETTING

PARAMETER/NUMBER	SETTING	
P101---MOTOR NAMEPLATE VOLTS	230	
P102---MOTOR NAMEPLATE HERTZ	60	
P103---MOTOR OVERLOAD CURRENT	6.0	
P104---MINIMUM FREQUENCY	10.0	*
P105---MAXIMUM FREQUENCY	90	*
P106---START SOURCE	2	*
P107---STOP MODE	0	
P108---SPEED REFERENCE	0	
P109---ACCELERATION TIME 1	1.0	*
P110---DECELERATION TIME 1	1.0	*
P111---MOTOR OVERLOAD RETENTION	0	
P112---RESET TO DEFAULTS	0	

ELECTRICAL DIAGRAM

20 AMP 115 VOLT AC, DEDICATED CIRCUIT MUST BE USED

DAKE CORPORATION
GRAND HAVEN, MICHIGAN 49417

DAKE MODEL SB-25 DRILL PRESS 120 VOLT 1-PHASE
DAKE DRAWING 87384 09/05/2013