



MODEL CX616

10" DRILL PRESS

USER MANUAL



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GENERAL SAFETY INSTRUCTIONS FOR MACHINES

Extreme caution should be used when operating all power tools. Know your power tool, be familiar with its operation, read through the user manual, and practice safe usage procedures at all times.

- ❖ **ALWAYS** read and understand the user manual before operating the machine.
- ❖ **CONNECT** your machine **ONLY** to the matched and specific power source.
- ❖ **ALWAYS** wear safety glasses respirators, hearing protection and safety shoes, when operating your machine.
- ❖ **DO NOT** wear loose clothing or jewelry when operating your machine. Wear protective hair covering.
- ❖ **A SAFE ENVIRONMENT** is important. Keep the area free of dust, dirt and other debris in the immediate vicinity of your machine.
- ❖ **BE ALERT! DO NOT** use prescription or other drugs that may affect your ability or judgment to safely use your machine.
- ❖ **DISCONNECT** the power source when changing drill bits, hollow chisels, router bits, shaper heads, blades, knives or making other adjustments or repairs.
- ❖ **NEVER** leave a tool unattended while it is in operation.
- ❖ **NEVER** allow unsupervised or untrained person to operate the machine.
- ❖ **NEVER** reach over the table when the tool is in operation.
- ❖ **ALWAYS** keep blades, knives and bits sharpened and properly aligned.
- ❖ **ALL OPERATIONS MUST BE** performed with the guards in place to ensure safety.
- ❖ **ALWAYS** use push sticks and feather boards to safely feed your work through the machine.
- ❖ **ALWAYS** make sure that any tools used for adjustments are removed before operating the machine.
- ❖ **ALWAYS** keep bystanders safely away while the machine is in operation.
- ❖ **NEVER** attempt to remove jammed cutoff pieces until the blade has come to a full stop.

SPECIFIC SAFETY INSTRUCTIONS

CX616 – 10" DRILL PRESS

- ❖ **READ AND UNDERSTAND** the user manual before operating the CX616.
- ❖ **ALWAYS WEAR** safety glasses for the protection of your eyes while operating this machine.
- ❖ **WEAR PROPER APPAREL.** Loose clothing, gloves neckties, rings, bracelets, or other jewelry may get caught in moving parts of the machine. Wear protective hair covering to contain long hair. Do not wear gloves and keep your fingers and hair away from rotating parts.
- ❖ **KEEP GUARDS** in place. Safe guards must be kept in place and in working order. Do not operate the drill press unless the chuck guard is in its position, guarding the chuck.
- ❖ **MAKE SURE** the work-piece is properly clamped to the table before operating the machine. Never hold the work-piece by hand when using the mill.
- ❖ **MAKE SURE** the cutting tool is sharp, not damaged and properly secured in the chuck before you start the machine.
- ❖ **NEVER** turn the power ON with the cutting tool contacting the work-piece.
- ❖ **SELECT THE PROPER SPINDLE SPEED** for the type of work and material you are cutting. Let the spindle reach to its full speed before beginning a cut.
- ❖ **DO NOT FORCE THE TOOL.** Always use the machine at the rate for which it is designed. Do not force the machine doing a job for which it is not designed.
- ❖ **NEVER LEAVE** the machine unattended while it is running.
- ❖ **ALWAYS** turn off the power before removing scrap pieces and cleaning the machine.
- ❖ **SHOULD ANY PART** of your tool be missing, damaged or fail in any way, shut off the machine immediately and remove the plug from power source. Replace any damaged or missing parts before resuming operation.
- ❖ **MAKE SURE** before installing and removing any parts, servicing, cleaning or making any adjustments, the switch is in the "OFF" position and the cord is unplugged from the power source.
- ❖ **BEFORE OPERATING** your drill press make sure you have read and understood all the safety instructions in the manual and you are familiar with your machine. If you fail to do so, serious injury could occur.

WARNING!

The safety instructions given above can not be complete because the environment in every shop is different. Always consider safety first as it applies to your individual working conditions.



CX616 – DRILL PRESS FEATURES

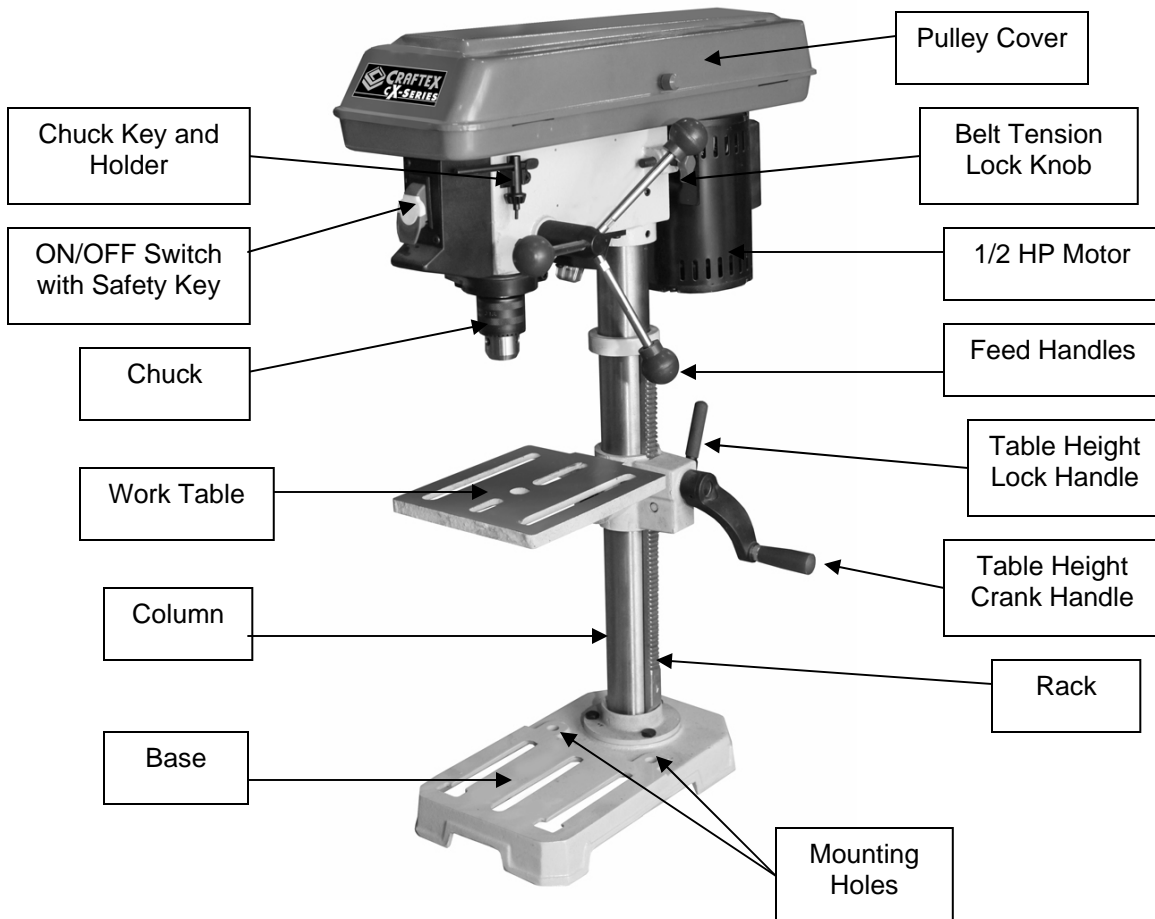
MODEL CX616 – 10" DRILL PRESS

As part of the growing line of Crafttex CX-Series metalworking equipment, we are proud to offer the CX616, a 10" Drill Press. By following the instructions and procedures laid out in this user manual, you will receive years of excellent service and satisfaction. The CX616 is a professional tool and like all power tools, proper care and safety procedures should be adhered to.

- ⊞ Motor 1/2 HP, 120V, 60 Hz, 3.2A
- ⊞ Motor.....No Load Speed: 1750 RPM
- ⊞ Spindle Speeds..... 610~2800 RPM
- ⊞ Spindle TaperJT33
- ⊞ Spindle Travel.....1.96"
- ⊞ Spindle Nose to Table12-/63/64 In
- ⊞ Spindle Nose to Base16-63/64 In
- ⊞ Column Diameter.....1-57/64 In
- ⊞ Quill Diameter1-37/64 In
- ⊞ Table Size.....7.55" x 6.49"
- ⊞ Chuck Capacity (Range).....0.06" ~ 0.5"
- ⊞ Machine Size9.25" L x 1.97" W x 28.8" H
- ⊞ Carton Size.....24" x 13.38" x 11.41"
- ⊞ Gross/ Net Weight (Approx).....21.5kg / 19.5 Kg
- ⊞ Warranty3-Years

PHYSICAL FEATURES

CX616 - 10" DRILL PRESS



PROPER GROUNDING

Grounding provides a path of least resistance for electric current to reduce the risk of electric shock.

CX616 is for use on a normal 110 volt circuit. Make sure that the machine is connected to an outlet having the same configuration as the plug. If an adaptor plug is used, it must be attached to the metal screw of the receptacle. To prevent electrical hazards, have a qualified electrician ensure that the line is properly wired.

The drill press should be wired with a plug having 3 prongs to fit a 3 prong grounded receptacle as shown in figure-1. Do not remove the grounding prong to fit it into a 2 pronged outlet.

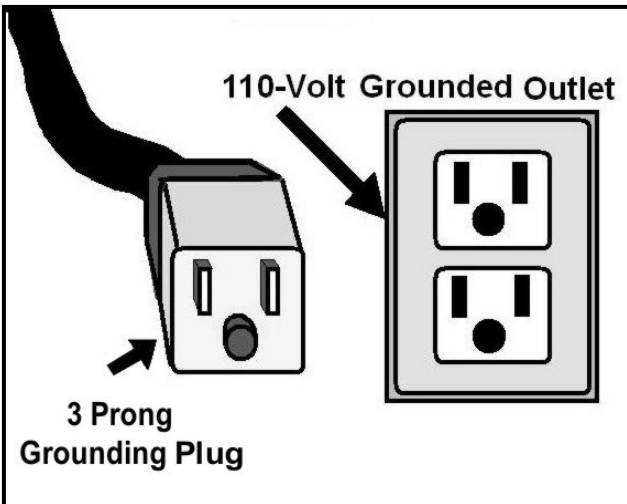


Figure-1 110-Volts outlet for CX616

WARNING!

Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded.

It is strongly recommended not to use extension cords with your CX616. Always try to position your machine close to the power source so that you do not need to use extension cords.

If you really find it necessary to use an extension cord, make sure the extension cord does not exceed 50-feet in length and the cord is 14-gauge to prevent motor damage.

UNPACKING

To ensure safe transportation this machine is properly packaged and shipped completely in a crate. When unpacking, carefully inspect the crate and ensure that nothing has been damaged during transit.

While doing inventory, if you can not find any part, check if the part is already installed on the machine. Some of the parts come assembled with the machine for the shipping purposes.

SETUP

Before setting up your machine you should read and understand the instructions given in this manual.

The unpainted surfaces of this machine are coated with a rust preventive waxy oil and you will want to remove this before starting assembly. Use a solvent cleaner that will not damage painted surfaces.

WARNING!

CX616 is a heavy machine, do not over-exert yourself. Use a fork truck or get the help of an assistant for safe moving.

MOUNTING TO A TABLE TOP

The CX616 features two mounting holes allowing it to be mounted to a table top having a load capacity of approximately 20 Kg.

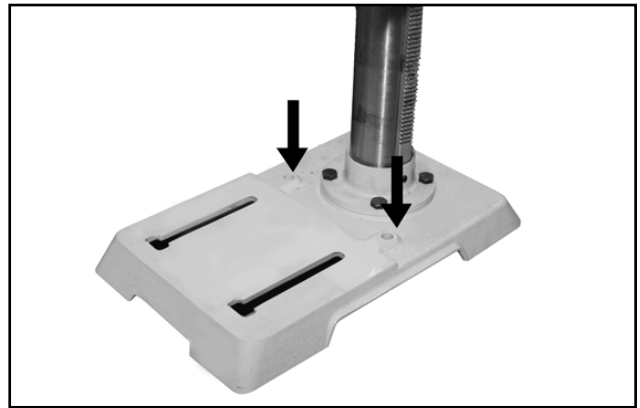


Figure-2 Mounting holes on the base

To mount the drill press to the table top:

Make sure the surface is flat and stable.

Position the drill press onto the table and use the two holes on the drill press base as a guide and drill into the table.

Secure the drill press to the table by using lag bolts, flat washers and hex nuts (not provided).

TABLE SUPPORT

To install the table support:

Slide the table support assembly all the way down until it rests on the base.

Install the support lock handle to right side of the table support as shown in figure-3.

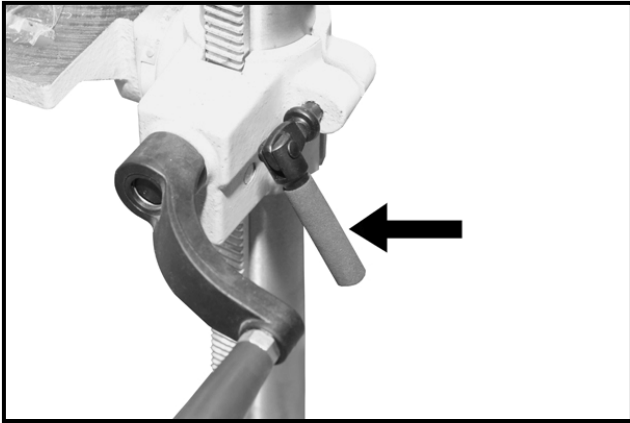


Figure-3 Installing table height lock handle

Slide the table to desired height and lock it in position.

FEED HANDLES

To install the feed handles:

Thread the three feed handles into the holes on the feed hub and hand tighten. See figure-4.

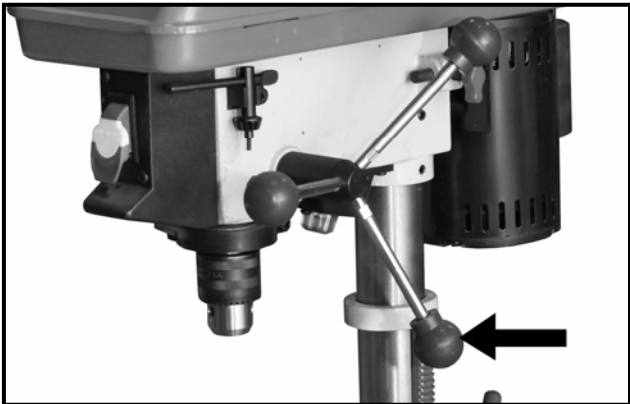


Figure-4 Installing the feed handles

INSTALLING THE CHUCK

Remove grease and particles from the chuck and spindle surface with a clean cloth.

Slide the chuck onto the arbor and then place a block of wood under the chuck and tap the chuck and arbor with a hammer until it seats into the spindle.

Do not strike the chuck directly with a steel hammer.

REMOVING THE CHUCK

Lower the chuck to its lowest position exposing the spindle sleeve.

The spindle sleeve has a large oval hole on both sides of it.

Rotate the chuck until the spindle hole lines up with the hole in the spindle sleeve.

Insert the wedge and tap the wedge lightly with a hammer.

The arbor and the chuck will release from the spindle.

ON/OFF SWITCH

The CX616 features ON/OFF switch with a removable key which prevents from unauthorized use when removed.

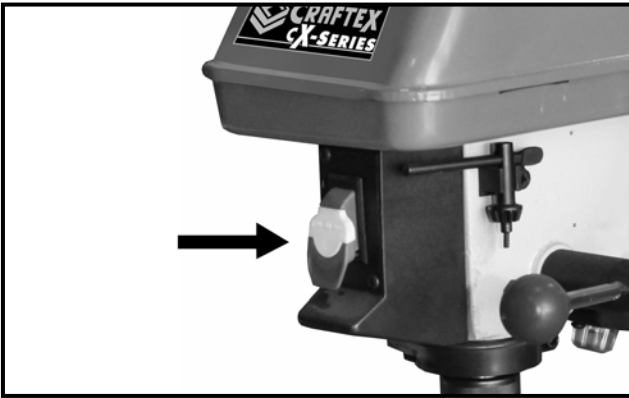


Figure-5 ON/OFF switch with removable key

LED LIGHT ON/OFF SWITCH

The rocker switch for the LED light is located on the side of the drill press.

Press the rocker switch with a dot to turn the LED light ON.

Press the rocker switch without a dot to turn the LED light OFF.

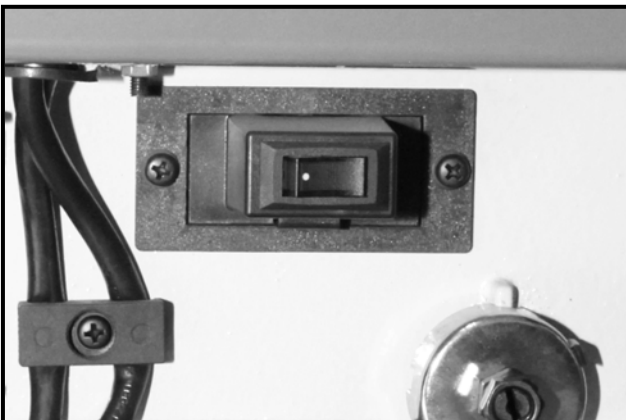


Figure-6 Rocker switch for LED light

TEST RUN

Once you have assembled your drill press completely, it is then time for a test run to make sure that it works properly and is ready for operation.

Remove all the tools used for assembling the machine and make sure all the guards are in place.

If you find an unusual problem during the test run, immediately stop the machine, disconnect it from the power and fix the problem before operating the machine again.

WARNING!

Before operating the drill press make sure that you have read and understood the instructions given in the manual and you are familiar with the functions and safety features on this machine. Failure to do so may cause serious personal injury or damage to the machine.

TO TEST RUN THE MACHINE

Connect the machine to power supply.

Turn the switch to ON position. The motor should run smoothly, without unusual vibration and noises.

Turn the switch to OFF position and allow the spindle to come to a complete stop.

ADJUSTING THE V-BELT

To adjust the V-belt:

Make sure the cord is disconnected from the power source.

Open the belt housing cover.

Choose a spindle speed from the chart located inside the belt cover.

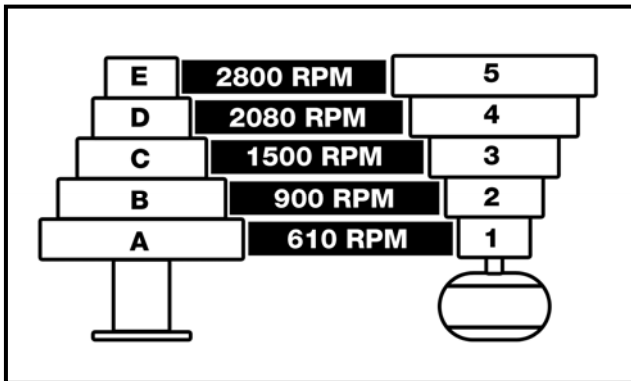


Figure-7 Belt / pulley position RPM chart

Turn the belt tension knob and loosen the motor tension spring. See figure-8.

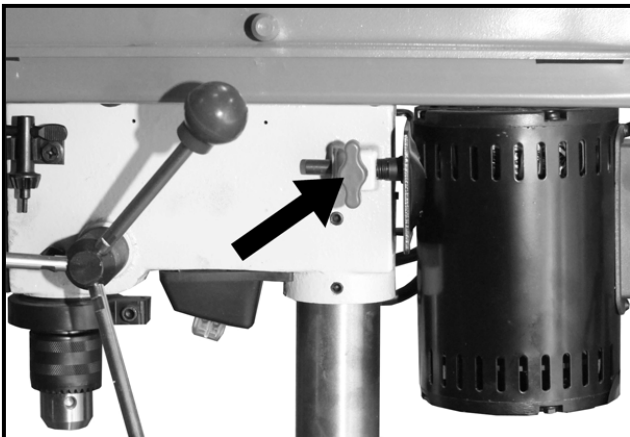


Figure-8 Tension knob

Pull the motor and release the tension on the V-belt. Position the V-belt onto the desired groove on the motor and spindle pulleys.

Push the motor away from the spindle to tension the V-belt and tighten the tension knob.

ADJUSTING TABLE

The table height and angle can be adjusted on the CX616.

To adjust the table height:

Make sure the cord is disconnected from the power source.

Loosen the lock handle, move the table to desired height and tighten the lock handle.



Figure-9 Table height adjustment controls

To adjust the table angle:

Turn the locking pin nut in a clockwise direction. This will draw the locating pin out of casting. Once loose, pull out the pin and nut.

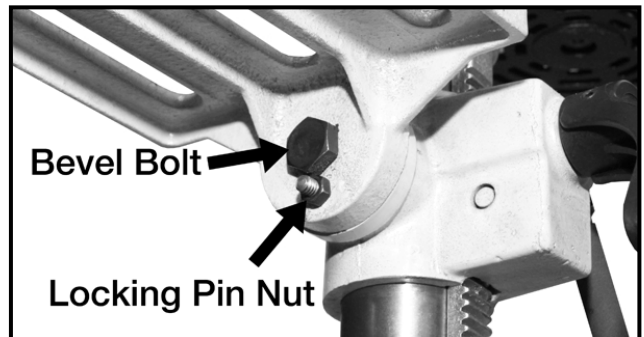


Figure-10 Table angle adjustment controls

CHANGING DRILL BIT

To insert the bit:

Make sure the cord is disconnected from the power source.

Open the chuck wide enough to accept a new bit.

Insert the drill bit into the chuck far enough to obtain maximum gripping by the jaws, but not far enough to touch the spiral grooves of the drill bit when the jaws are tightened.

Tighten the chuck with the chuck key.

Remove the chuck key and reconnect the power source.

To remove a drill bit:

Disconnect the cord from the power source.

Loosen the chuck with the chuck key and remove the bit with your hand.

DEPTH STOP

A drilling depth stop is provided on the left side of the drill head. The depth stop consists of a threaded rod with depth setting jam nuts. The front side of the threaded rod has a depth scale. The jam nuts are loosened and moved to the desired depth on the scale. The upper jam nut is then tightened against the lower nut. See figure-3.

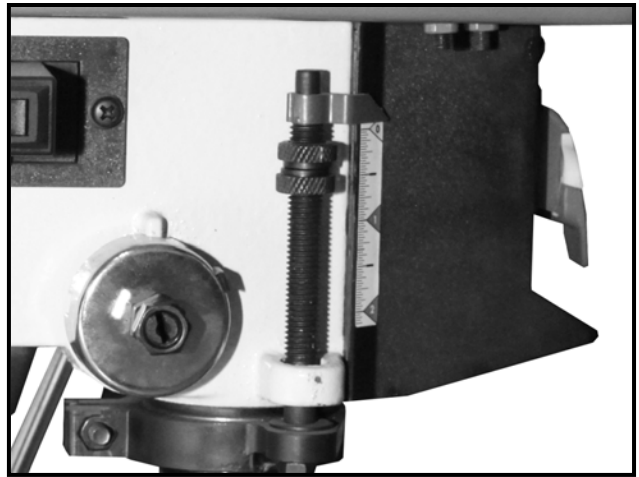


Figure-11 Depth stop

MAINTENANCE

During the life of your machine, you will need to practice some regular maintenance to keep your machine in peak performance condition.

WARNING!

Make sure the main power switch is OFF and the cord is disconnected from the power source, before making any adjustments, lubricating or servicing. Failure to do so could result in serious personal injury or even death.

1. Check the machine everyday before operation for; worn or damaged cord, wire, loose nuts and bolts and make sure all the safety devices are working properly.
2. Treat your machine with care, keep it clean and grease and lubricate it regularly. Only through good care you can be sure that the working quality of the machine will remain constant.
3. During operation, the chips which fall onto the sliding surface should be cleaned in a timely fashion. Frequent inspections should be made to prevent chips from falling into the position between the work table and the slide ways.
4. After the operation every day, eliminate all the chips and clean different parts of the machine tool and apply machine tool oil to prevent from rusting.
5. Make sure your work area is well ventilated.

LUBRICATION

Following are lubrication recommendations for drill press components.

SPINDLE PULLEY DRIVE

Lubricate spindle occasionally with light grease.

QUILL, TABLE, AND COLUMN

Lubricate with light film of oil.

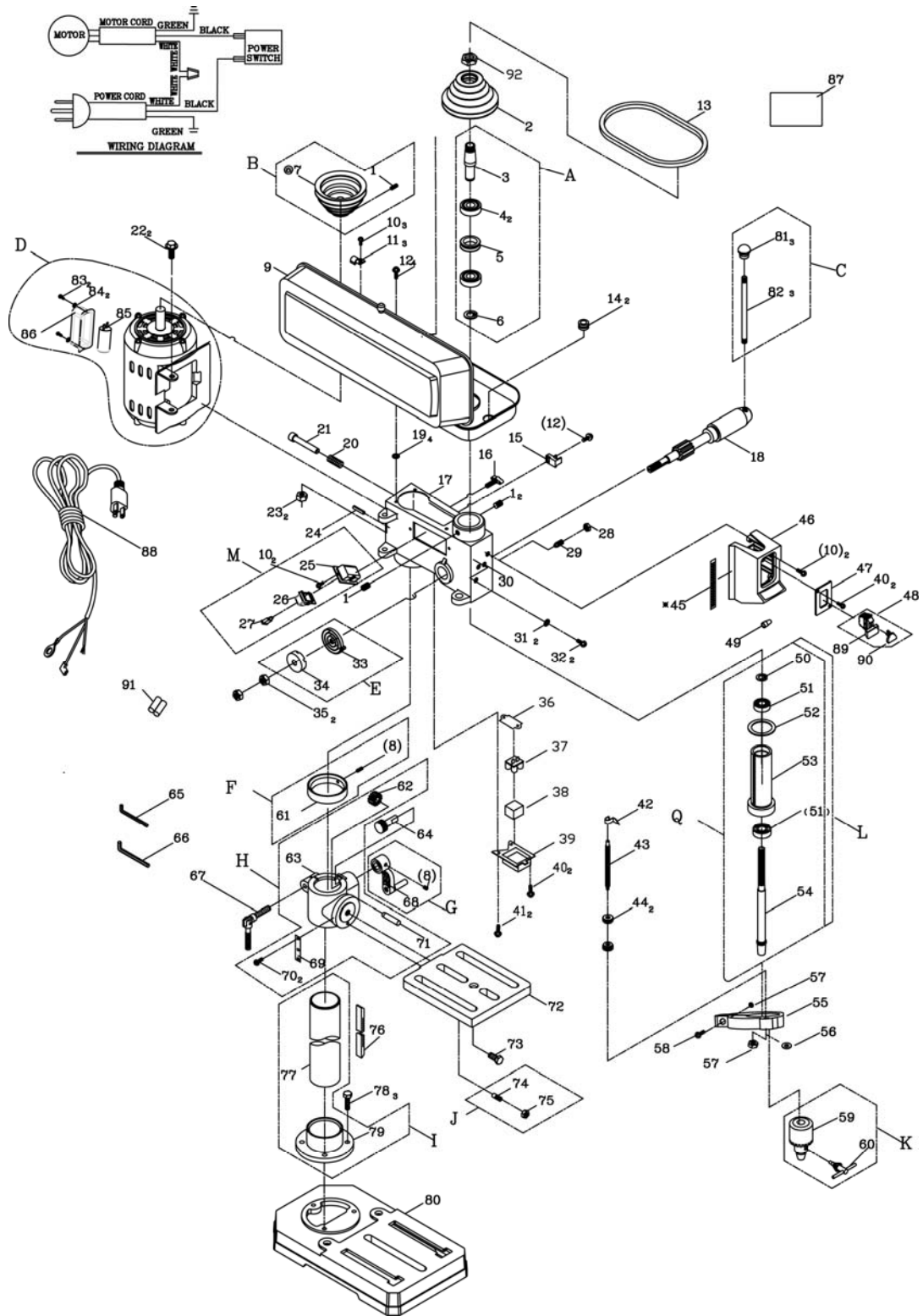
TABLE LIFT RACK

Lubricate regularly with SAE20 oil (clean rack with solvent before applying oil.)

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	REMEDY
Spindle does not turn.	<ol style="list-style-type: none"> 1. Circuit breaker tripped. 2. Branch circuit breaker tripped or fuse blown. 3. Open wire in switch circuit. 4. Defective switch. 5. Broken drive belt. 	<ol style="list-style-type: none"> 1. Reset circuit breaker. 2. Reset branch circuit breaker/replace fuse. 3. Repair open circuit. 4. Repair switch. 5. Replace drive belt.
Spindle noisy.	<ol style="list-style-type: none"> 1. Damaged spindle bearings. 2. Worn spindle. 	<ol style="list-style-type: none"> 1. Replace bearings. 2. Replace spindle.
Drill stalls.	<ol style="list-style-type: none"> 1. Worn drive belt. 2. Excessive feed rate for size of drill and material being drilled. 3. No cutting fluid or improper cutting fluid. 	<ol style="list-style-type: none"> 1. Check condition of belt. Replace if glazed or slipping on pulleys. 2. Reduce feed pressure or use cutting fluid. 3. Use correct cutting fluid.
Poorly drilled holes.	<ol style="list-style-type: none"> 1. Drill dull. 2. Lack of rigidity in hold-down method. 3. Speed too fast for material and drill size. 4. Feed too fast for material and drill size. 5. No or improper cutting fluid or coolant being used. 6. Improperly ground drill bit. 	<ol style="list-style-type: none"> 1. Sharpen drill. 2. Check that all T-slot hold-downs are tight and that table-lock and drill head bolts are tight. 3. Check spindle speed recommendations. Reduce speed if necessary. 4. Reduce feed rate. 5. Use cutting fluid, or change to proper fluid or coolant for material being drilled. 6. Check for proper angles and reliefs. Regrind to proper geometry.
Motor overheating.	<ol style="list-style-type: none"> 1. Electrical circuit fault. 2. Oversize drill. 3. Excessive feed. 4. No cutting fluid, or wrong fluid. 	<ol style="list-style-type: none"> 1. Check current draw in circuit. Make sure current draw is the same as rating on motor plate. 2. Reduce drill size. 3. Reduce feed rate. 4. Use correct cutting fluid for the material and drill.
Table can not be raised.	<ol style="list-style-type: none"> 1. Lack of lubrication. 	<ol style="list-style-type: none"> 1. Lubricate.

DRILL HEAD PARTS DIAGRAM



DRILL HEAD PARTS LIST

TABLE & BASE PARTS DIAGRAM

#	Description	Spec.	Qty
1	PULLEY SET NUT	M8*10	4
2	SPINDLE PULLEY		1
3	DRIVE SLEEVE		1
4	BALL BEARING	6203Z	2
5	RING	φ 39 * 10	1
6	CIRCLIP FOR SHAFT		1
7	MOTOR PULLEY		1
8	HEX SCREW	M6*10	2
9	PULLEY COVER ASS'Y	DP2500RC	1
10	PHILIPS SCREW	M5*0.8-12	8
11	CORD CLAMP		3
12	PHILIPS SCREW	M6*1.0-12	5
13	V-BELT		1
14	RUBBER SLEEVE	φ 20	2
15	CHUCK KEY HOULDER		1
16	SHIFTER BOLT	M8*1.25-20 23#	1
17	HEAD	10"	1
18	FEED SHFT		1
19	FLAT WASHER		4
20	COMPRESSION SPRING		1
21	MOTOR ROD		1
22	HEX SCREW	M8X1.25-25	2
23	LOCKNUT	M8*1.25 T=8	2
24	SPRING PIN	4-18 black	1
25	BARTERRY BOX		1
26	BARTERRY BOX COVER		1
27	LED SWTICH	XCK-27	1
28	HEX NUT	M8*1.25	1
29	QUIL SET SCREW	M8*1.25-14	1
30	EARTH MARK		1
31	STAR WASHER	φ 5	2
32	PHILIPS SCREW	M5*0.8-8	2
33	SPRING	7*50 T=0.8MM	1
34	SPRING CAP		1

35	HEX NUT	3/8*24UNF T=8	2
36	LED PRESSURE PLATE		1
37	LED		1
38	LED SHADE		1
39	LED BASE		1
40	PHILIPS SCREW	S4. 2*12	4
41	PHILIPS SCREW	M4X10	2
42	POINTER		1
43	SET BOLT	M10*1.5	1
44	NUT	M10X1.5-2B	2
45	DEPTH SCALE		1
46	SWITCH BOX		1
47	SWITCH PLATE		1
48	ON/OFF SWITCH	J-9301 125/250V 1-1/2HP 16/10A	1
49	TERMINAL	16~14AWG UL	1
50	CIRCLIP FOR SHAFT	A-11	1
51	BALL BEARING	6201Z	2
52	RUBBER WASHER	Inner hole φ 40 , T=4MM	1
53	QUIL	DP2500RC	1
54	SPINDLE	JT33#	1
55	SCALE BASE	ABS	1
56	FLAT WASHER	φ 6	1
57	HEX NUT	M6	2
58	HEX SCREW	M6*20	1
59	CHUCK	JT33	1
60	CHUCK KEY	45#	1
61	RACK RING	DP2500RC	1
62	INNER GEAR	φ 3/8" *14	1
63	TABLE BRACKET	DP2500RC	1
64	WORM	φ 12.2*58	1
65	HEX KEY	black 3-57	1
66	HEX KEY	black 4-64	1
67	TABLE LOCK HANDLE		1
68	CRANK HANDLE		1
69	ANGLE SCALE	6.6*64	1
70	RIVET	φ 2.3-5	2

71	INNER GEAR SHFT		1
72	TABLE		1
73	HEX BOLT	1/2*12UNC-7/8	1
74	LOCATION PIN		1
75	HEX NUT	1/4*20UNC T=4.7	1
76	RACK	DP2500RC	1
77	COLUMN	48*544	1
78	HEX BOLT	M8*1.25-25	3
79	COLUMN BASE	DP2500RC	1
80	BASE		1
81	HANDLE HEAD		3
82	HANDEL BAR	3/8" - 16UNC , M8X1.25 , L=111	3
83	PHILIPS SCREW	M4*0.7-6	2
84	FLAT WASHER	φ 4	2
85	CAPACITOR	125WVAC 150UF 1/3HP	1
86	CAPACITOR BOX		1
87	MANUAL		1
88	POWER CORD		1
89	ON/OFF SWITCH KEY		1
90	ON/OFF SWITCH BASE		1
91	BARTTERY	AA	2
92	PULLEY SET NT		1
93	WIRE SET PLATE		1
94	CARTON		1
95	FOAM		1
A	DRIVE SLEEVE ASS'Y		1
B	MOTOR PULLEY ASS'Y		1
C	HANDLEASS'Y		3
D	MOTOR ASS'Y	1/2HP 120V/60HZ	1
E	SPRING CAP ASS'Y		1
F	RACK RING ASS'Y		1
G	CRANK HANDLE ASS'Y		1
H	TABLE BRACKET ASS'Y		1
I	COLUMN ASS'Y		1
L	LOCATION PIN ASS'Y		1
K	CHUCK & KEY		1
Q	QUIL ASS'Y		1
M	BARTTERY BOX ASS'Y		1

TABLE & BASE PARTS LIST

PART #	DESCRIPTION	QTY
A01	Hex Head Cap Screw 1/2-12x1-1/2	4
A02	Base	1
A03	Flange (Base / Column)	1
A04	Hex Head Cap Screw 1/2"-12x4"	2
A05	Collar	2
A06	Rack Ring	2
A07	Hex Nut 7/16-14	2
A08	Column	1
A09	Rack	1
A10	Luck handle	1
A11	Table Lock (Plain Side)	1
A12	Table	1
A13	Hex Head Cap Screw 1/2" x 4"	1
A14	Grip, Table Raiser	1
A15	Handle, Table Raiser	1
A16	Socket Head Set Screw 5/16-18x3/8	1
A17	Hex Head Cap Screw 1/4x1	4
A18	C-Ring, Table Raiser	2
A19	Shaft Table Raiser	1
A20	Gear Table Raiser	1
A21	Warm Shaft Table Raiser	1
A22	Bushing	1
A23	Raise Bracket	1
A24	Table Raiser Assembly	1
A25	Set Screw 1/2" x 1"	2
A26	Set Screw M6x6	2



WARRANTY

CRAFTEX 3 YEARS LIMITED WARRANTY

Craftex warrants every product to be free from defects in materials and agrees to correct such defects where applicable. This warranty covers **three years** for parts and 90 days for labor (unless specified otherwise), to the original purchaser from the date of purchase but does not apply to malfunctions arising directly or indirectly from misuse, abuse, improper installation or assembly, negligence, accidents, repairs or alterations or lack of maintenance.

Proof of purchase is necessary.

All warranty claims are subject to inspection of such products or part thereof and Craftex reserves the right to inspect any returned item before a refund or replacement may be issued.

This warranty shall not apply to consumable products such as blades, bits, belts, cutters, chisels, punches etceteras.

Craftex shall in no event be liable for injuries, accidental or otherwise, death to persons or damage to property or for incidental contingent, special, or consequential damages arising from the use of our products.

RETURNS, REPAIRS AND REPLACEMENTS

To return, repair, or replace a Craftex product, you must visit the appropriate Busy Bee Tools showroom or call 1-800-461-BUSY. Craftex is a brand of equipment that is exclusive to Busy Bee Tools.

For replacement parts directly from Busy Bee Tools, for this machine, please call 1-800-461-BUSY (2879), and have your credit card and part number handy.

- All returned merchandise will be subject to a minimum charge of 15% for re-stocking and handling with the following qualifications.
- Returns must be pre-authorized by us in writing.
- We do not accept *collect* shipments.
- Items returned for warranty purposes must be insured and shipped pre-paid to the nearest warehouse
- Returns must be accompanied with a copy of your original invoice as proof of purchase. Returns must be in an un-used condition and shipped in their original packaging a letter explaining your reason for the return. Incurred shipping and handling charges are not refundable.
- Busy Bee will repair or replace the item at our discretion and subject to our inspection.
- Repaired or replaced items will be returned to you pre-paid by our choice of carriers.
- Busy Bee reserves the right to refuse reimbursement or repairs or replacement if a third party without our prior authorization has carried out repairs to the item.
- Repairs made by Busy Bee are warranted for 30 days on parts and labour.
- Any unforeseen repair charges will be reported to you for acceptance prior to making the repairs.
- The Busy Bee Parts & Service Departments are fully equipped to do repairs on all products purchased from us with the exception of some products that require the return to their authorized repair depots. A Busy Bee representative will provide you with the necessary information to have this done.
- For faster service it is advisable to contact the nearest Busy Bee location for parts availability prior to bringing your product in for repairs.