

# **KING TOOLS & EQUIPMENT OPERATORS INSTRUCTIONS AND PARTS LIST**

**16 SPEED FLOOR MODEL  
DRILL PRESS  
MODEL #4120-0**



# READ INSTRUCTIONS BEFORE OPERATING

## SAVE THIS INSTRUCTION BOOK

Thank you for purchasing your King 16 Speed Drill Press. With the proper care and operation you will enjoy years of trouble free service from your King Drill Press. Please read this instruction manual and follow the directions carefully. You need this instruction book for operating instructions and the parts list. Keep it in a safe dry place. Staple your sale receipt to the front of the book in case you need it for warranty reasons.

### Warning:

The instructions and warnings in this instruction book can not cover every situation. The operator must use common sense and caution when operating this machine

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## WARRANTY

THIS PRODUCT IS WARRANTED AGAINST DEFECTS IN MATERIAL AND MANUFACTURING WORKMANSHIP FOR A PERIOD OF ONE YEAR. CONSUMABLE PARTS SUCH AS PULLEY BELTS, MOTOR BRUSHES, BULBS, ETC ARE NOT COVERED UNDER THE WARRANTY. WE HAVE STRICT QUALITY CONTROL STANDARDS. HOWEVER, SOMETIMES A PRODUCT MAY GET SHIPPED THAT DOES NOT MEET OUR QUALITY STANDARDS. IF YOU HAVE A PRODUCT THAT DOES NOT PERFORM PROPERLY IN THE FIRST 30 DAYS YOU CAN TAKE IT BACK TO THE RETAIL STORE WHERE YOU BOUGHT IT FOR A REFUND OR REPLACEMENT. AFTER 30 DAYS IT MUST BE SHIPPED TO KING AT THE FOLLOWING ADDRESS. BEFORE YOU RETURN THE PRODUCT CALL FOR AN AUTHORIZATION NUMBER. IF ALL YOU NEED IS A PART, THAT CAN BE SHIPPED TO YOU, NO CHARGE UNDER WARRANTY. IF YOU ARE MAKING A RETURN OR ORDERING A REPLACEMENT PART PROOF OF THE DATE OF PURCHASE WILL BE REQUIRED. RETURN SHIPMENTS MUST BE SENT POSTAGE OR UPS PAID.

KING TOOLS & EQUIPMENT CUSTOMER SERVICE  
800-950-5464 OR 909-930-6588

SHIP TO: KING TOOLS & EQUIPMENT  
1255 ACACIA ST.  
ONTARIO, CA 91761

PRODUCTS RETURNED WILL BE REPAIRED NO CHARGE IF THEY ARE UNDER WARRANTY AND HAVE NOT BEEN IF THEY ARE UNDER WARRANTY AND HAVE NOT BEEN MODIFIED OR ABUSED. ONCE REPAIRED THEY WILL BE RETURN POSTAGE PAID. IF THERE IS A CHARGE FOR ANYTHING YOU WILL BE CONTACTED WITH AN ESTIMATE. REPAIRS MUST BE PAID IN ADVANCE BY CREDIT CARD OR CHECK.

## SPECIFICATIONS

Motor _____	1 H.P., 7.5 AMP, 120V 1725RPM, 60Hz, 550W
Speeds _____	16, 260 to 4220 RPM
Chuck _____	5/8"
Spindle Taper _____	Mt2 (#2 Morse Taper)
Table _____	12" dia. Round Rotating
Table T Slots _____	5/8" x 3 1/4"
Spindle Travel _____	3"
Max. Distance _____	
Chuck to Table _____	27"
Chuck to Base _____	46"
Throat Depth _____	6.6"
Weight _____	126lbs

## IMPORTANT SAFETY INFORMATION

### WARNING:

Certain hazards are involved with the operation of all machinery. Always exercise caution and respect for the machine. Follow all the SAFETY RULES to avoid personal injury and damage to property.

- 1) **READ THE INSTRUCTION MANUAL CAREFULLY.** Learn the machines applications and limitations as well as the specific potential hazards unique to the machine.
- 2) **DO NOT REMOVE SAFETY GUARDS.** Keep the guards in good working order.
- 3) **GROUND THE MACHINE.** The machine is equipped with a 3 prong plug and should be plugged into a 3 prong electrical socket. Never remove the ground pin on the plug.
- 4) **ADJUSTMENT TOOLS MUST BE REMOVED BEFORE OPERATION.** Make sure hex keys, wrenches, sockets, etc are removed before starting the machine.
- 5) **CLEAN IS SAFE.** Keep the work area clean and neat. Avoid clutter that could cause an accident.
- 6) **DON'T WORK IN A DANGEROUS ENVIRONMENT.** Don't use machines in a wet, dark or slippery area.
- 7) **CHILD PROOF THE WORKSHOP AREA.** Lock the area, turn the power off, unplug the machines,
- 8) **KEEP AWAY.** Don't let children or visitors near the machines when they are in operation.
- 9) **DON'T USE FORCE.** The machine is design to work at its own capacity. Don't force it to do something it was not designed to do.
- 10) **WEAR PROPER CLOTHING.** Loose clothes, gloves, neckties, bracelets may get caught in moving parts. Non slip shoes is recommended. Long hair should be contained.
- 11) **WARE EYE PROTECTION.** Wear impact resistant safety glasses when operating the machine. Regular eye glasses are not impact resistant.
- 12) **Wear EAR PLUGS.** Protect your hearing by wearing ear plugs when operating loud noise machines.
- 13) **DON'T OVER REACH.** Keep your balance at all times.
- 14) **KEEP TOOLS IN GOOD CONDITION.** Keep the blades sharp and clean. Follow the maintenance instructions.
- 15) **ALWAYS DISCONNECT THE MACHINE.** Unplug the machine before servicing the machine or changing the accessories.
- 16) **DAMAGE INSPECTION.** Before operating the machine check it for damage. If a guard is damaged replace it. If a moving part or major component is damaged have a qualified technician inspect it and replace it if necessary.

- 17) **DO NOT STAND ON THE MACHINE.** Do not stand on the machine as it may cause damage or tip over.
- 18) **NEVER OPERATE THE MACHINE.** Never operate the machine under the influence of drugs or alcohol.
- 19) **KEEP THE LIGHTS ON.** Make sure the work area is well lite, bright and not in a shadow.

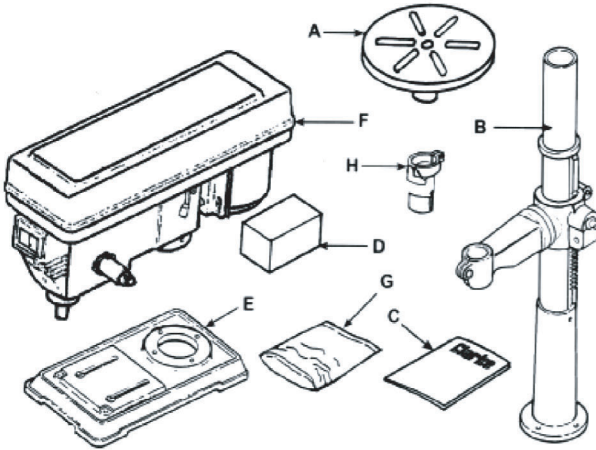
## SAFETY RULES FOR DRILL PRESSES

**WARNING:** This machine must not be modified or used for any purpose other than for which it was designed.

- 1) **DO NOT OPERATE.** You should not operate this machine unless you are thoroughly familiar with drilling machines and drilling techniques.
- 2) Do not operate the machine until it is completely assembled.
- 3) Read and understand the operators manual before operating the machine.
- 4) Make sure the proper electrical regulations are followed and the machine is grounded.
- 5) Before turning the machine on always
  - a) Make sure the chuck keys and spanner wrenches are removed.
  - b) Make sure the work piece is properly secured
  - c) Make sure you don't have clothing that may get caught in the moving parts of the drill press.
- 6) Always use the correct speed for the type and thickness of material you are drilling.
- 7) Make all adjustments to the machine with it turned OFF.
- 8) Never leave the drill press running while unattended.
- 9) When you are finished with your job remove drill bits.
- 10) Drill Press are designed for use with drill bits and mortising attachments only. The use of other accessories could be dangerous.
- 11) Never hold the work piece with your hand. The work piece should be held with a drill press vise or clamp that is secured to the table.

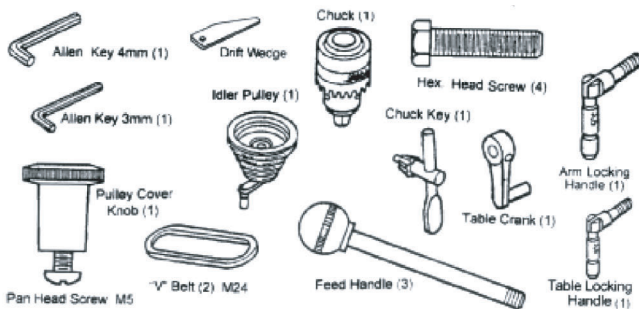
## ORGANIZATION FOR ASSEMBLY

Open the box and carefully unpack the components and make sure no damage has occurred during shipment. Make sure all the parts are there. The following items show be in the box.



- A. Table Assy.
- B. Column Assy.
- C. Instr. Manual
- D. 1 x Box of Parts
- E. Base
- F. Head Assy.
- G. 1 x bag of Parts
- H. Chuck Guard Assy.

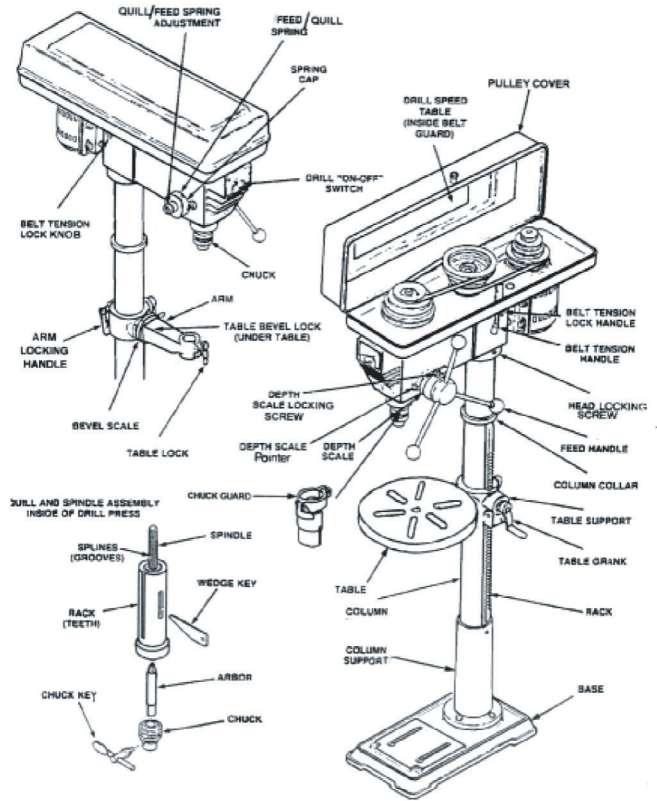
Parts in the box and bag



Make sure you have all of these parts. If anything is missing contact King Customer Service or your local retailer.

Clean the preservative off the parts with a solvent and dry cloth. Put some light oil on the table, base column and chuck to prevent rust. Be careful lifting the heavy parts.

## PARTS DESCRIPTION



## ASSEMBLY

- A. Column Assembly to Base
  1. With the base on a flat level surface, bolt the column on to the base using the 4.m10 hex head bolts provided and tighten them fully.
  2. Put the table into the table support and tighten with the locking handle. (Fig. 1)
  3. Make sure the set screws on the column support are tight.
  4. Install the crank handle onto the table support assembly. (Fig. 1)

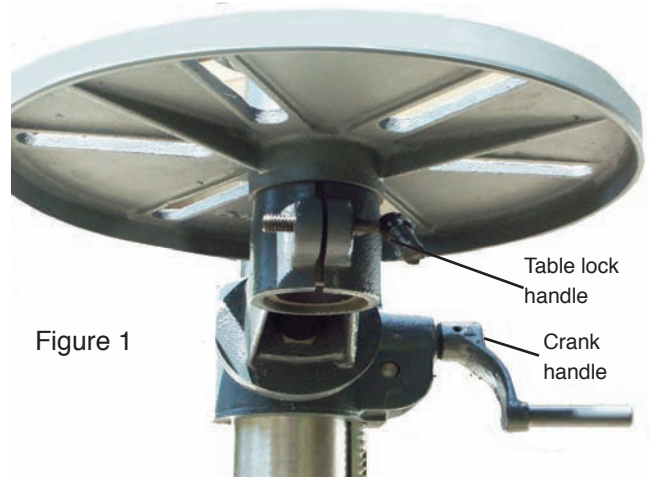


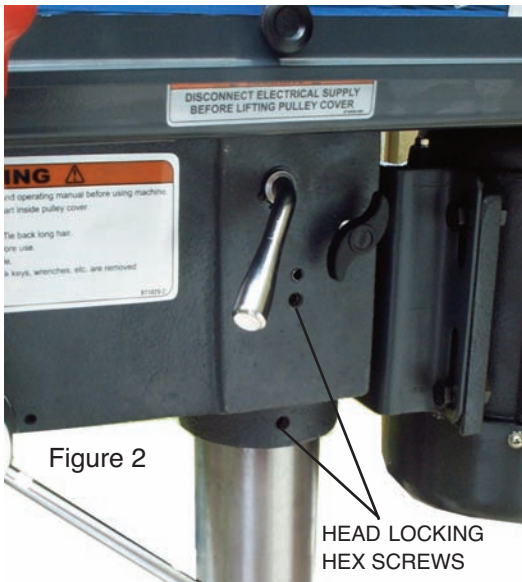
Figure 1



## B. Head to Column

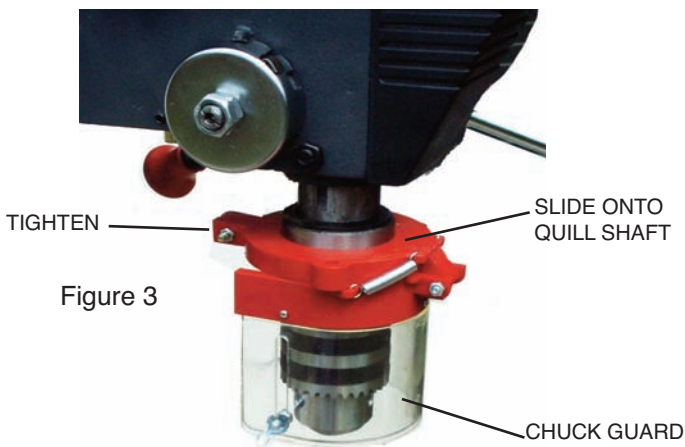
Note: It may be necessary to unscrew the Head Lock Set Screw (Fig.2) slightly to make sure they are not protruding internally as this would prevent the head from sliding onto the column.

- 1) With help raise the head and slide it onto the column.
- 2) Line up the head with the base and secure the head in place with the set screws. A Hex Key wrench is provided.
- 3) Screw the feed handles into the hub of the spindle feed shaft.



## C. Chuck Guard Assembly

Note: Install the guard before you install the chuck. Slide the chuck guard over the Quill shaft, turn it so that the pinch bolt faces the front, then tighten up the pinch bolt to temporarily secure it in this position, as shown in fig. 3. Important; Make sure the Quill Shaft/Spindle is at the top of its travel.

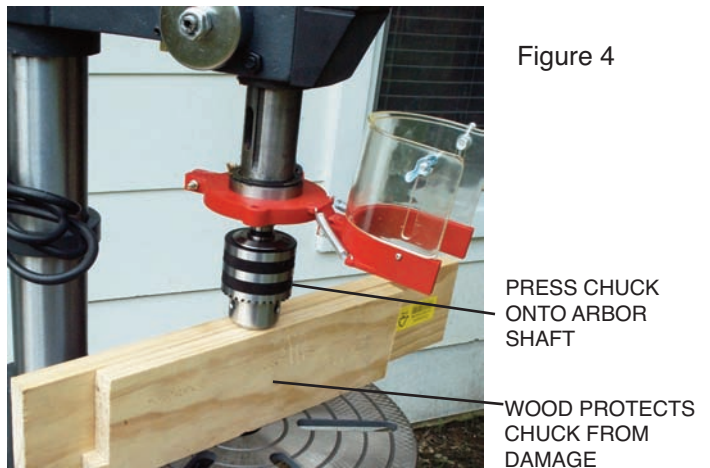


## D. Pulley Cover Knob

Locate the knob with the pan head screw and firmly screw it onto the pulley cover.

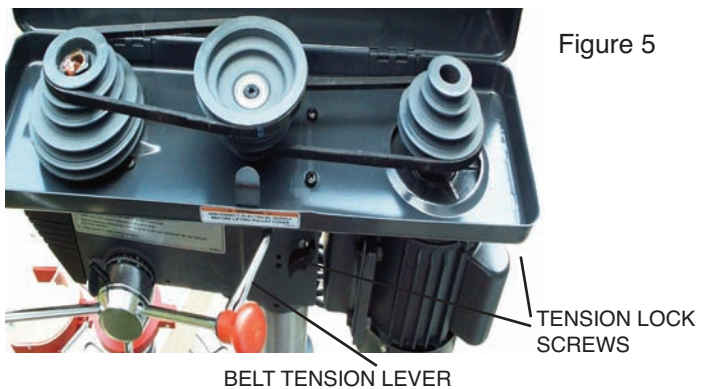
## E. Installing the Chuck

- 1) Move the table up the column to within 6" of the spindle.
- 2) Open the jaws of the chuck to their maximum using the chuck key.
- 3) Place a piece of scrap wood on the table.
- 4) Make sure all the parts are clean, dry and burr free. Place the chuck over the end of the arbor and pull the feed handles down pressing the chuck hard against the piece of scrap wood until the chuck is secured. fig 4
- 5) Turn the chuck guard 180 degrees and tighten the pinch bolt



## F. Fitting the Drive Belts

- 1) Undo the belt Tension Locking Screws ( one on either side of the head-A fig. 5) and turn the Belt Tension Lever (b-fig.5) clockwise to bring the Motor Pulley closer to the Spindle Pulley (which will allow the belts to be slipped on with ease.



- 2) Lightly grease the idler pulley pivot shaft. Install the idler pulley assembly in its mounting between the motor and the spindle pulleys.
- 3) For your desired speed use the chart under the pulley cover to fit the belts onto the pulleys.
- 4) Turn the Belt Tension Lever counter clockwise to apply tension to the belts. Tension is correct when the belts deflect 1/2" at their center points. Lock the motor in position with the Belt Tension Locking Screws-A.

Note:

- 1) The idler pulley will float so that tension is applied equally to both ends.

## SETTINGS AND ADJUSTMENTS

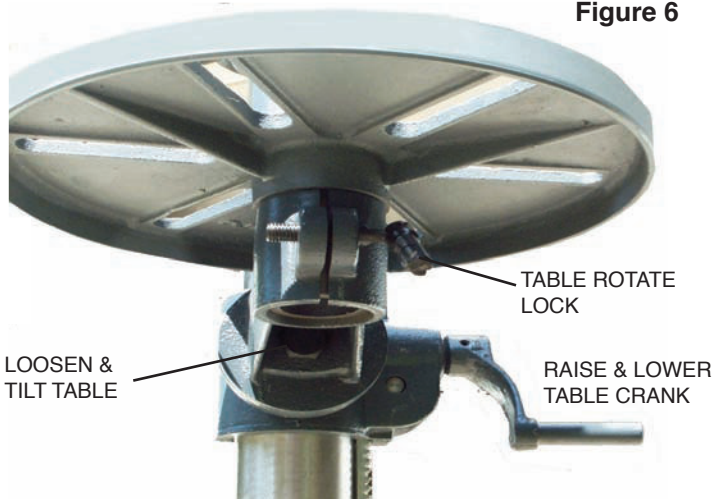
### 1) TABLE

The table can be raised or lowered using the crank by loosening the lock bolt with the handle then cranking the table up or down to the desired position. It can also be swiveled about the column. Once in position lock the table in place.

The table will rotate by loosening the lock bolt under the table at the mounting shaft.

The table will tilt by loosening the lock screw under the table. A tilt degree scale is provided on the table mounting.

Figure 6



2) DRILLING DEPTH, There is a depth stop collar and scale around the spindle feed collar. The collar turns on the shaft and may be locked into position. the scale is in inches and metric.

To set the drilling depth turn the machine off, lower the drill bit to the desired location, then loosen the locking screw and turn the collar so that the measurement for the depth of hole required is in line with the pointer. Lock the collar using the locking screw. FIG 7



Figure 7

DEPTH STOP COLLAR

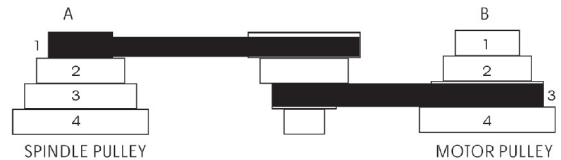
### 3) CHANGING SPEEDS

Turn the machine off before changing the speeds.

- 1) Loosen the Belt tension Screws on both sides of the head. Move the lever clockwise to relieve the tension on the belts.
- 2) Move the belts to the desired speed using the chart located in the pulley cover.
- 3) Tighten the belt by moving the lever counter clockwise. When the belts deflect 1/2" using pressure from your thumb the tension is correct.

### DRILL SPEED TABLE

1) The chart below shows the belt arrangement for the given speeds. The diagram example shows the belts fitted to A1 and B3 which produces a speed of 2530 RPM.



	Spindle pulley A	Motor Pulley B	Drill Speed RPM		Spindle pulley A	Motor Pulley B	Drill Speed RPM
1	5	1	260	9	3	2	870
2	4	1	340	10	5	4	1040
3	5	2	390	11	1	2	1590
4	4	2	500	12	2	3	1740
5	3	1	580	13	3	4	2320
6	5	3	630	14	1	3	2530
7	2	1	750	15	2	4	2910
8	4	3	790	16	1	4	4220

## OPERATION

- 1) Insert the drill bit into the jaws of the chuck by approximately 1", making certain the jaws do not touch the flutes of the drill. Before tightening the chuck make sure the drill bit is centered within the jaws.
- 2) Make sure the table height and position is set so the drill travel will do the job.
- 3) Make sure the work is securely clamped or held in a drill press vise bolted to the table. Never hold with bare hands. Hold a work piece that is being drilled with your hands can cause personal injury, damaged to the machine and the work piece.
- 4) For small work pieces always use a drill press vise.
- 5) When drilling completely through wood position a piece of scrap wood under the work piece to prevent splintering and damage to the drill bit or work table. You should also set the depth of travel so that the drill bit does not come in contact with the work table.
- 6) When you are completely satisfied with the job set up lower the chuck guard and turn the machine on.

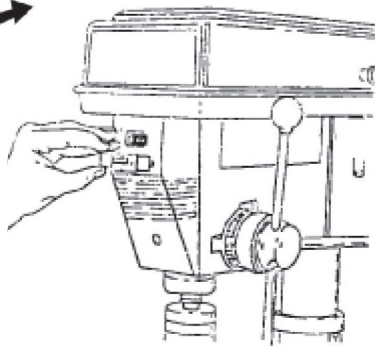


**NOTE:**

1. Insert KEY into switch  
Key is made of yellow plastic.



Fig.13



2. A light is also provided which is built into the head. The light switch is located above the ON/OFF switch.

## REMOVING THE CHUCK

To remove the chuck pull the spindle all the way down using the feed handles. The slot on the side of the Quill will become visible as shown in (Fig.8). Turn the chuck with your hand until you can see through the slot. That will expose the top of the arbor that hold the chuck. Move the table up to an inch or so of the chuck and place a thick cloth on the table. Then insert the drift wedge into the quill slot and tap it with a hammer. The chuck and arbor (#2 MY) will drop out. To disconnect the chuck from the arbor give the chuck a sharp tap on the top with a rubber mallet. If this doesn't work turn the chuck upside down open the jaws completely and put a punch through the H-center. hit the punch end with a hammer to drive the arbor out of the chuck.

Note: Morse taper (#2MT) drill bits may also be used in this drill press.



Figure 8

Remove chuck by inserting drift key in this slot and tap key with hammer

## MAINTENANCE

- 1) Keep the machine clean. Blow off dust after using the machine.
- 2) Put light oil or WD40 on the surfaces to prevent rust.
- 3) Check the pulley belts for wear and to make sure they are tight.
- 4) Check the bolts and hex screws on the base and head to make sure they are tight.
- 5) All the bearings are packed with grease at the factory and do not require service.

## USING THE LASER

The laser light/laser radiation used in this laser centering device system is Class 2 with a maximum 1 mW and 400nm-0700nm wavelengths. These lasers do not normally present an optical hazard although staring at the beam may cause flash blindness.

### WARNING

- \* Never aim the laser beam at a person or pet.
- \* Do not stare at the laser beam
- \* Make sure the surface the beam is aimed at is not reflecting the beam at a person or pet.
- \* Only turn the laser beam on when the work piece is in place and turn it off upon completion.

### RESETTING THE LASER BEAM

- 1) Loosen the set screws on the side of the laser tubes. Adjust the tubes so the laser beam intersects at the point where the drill bit touches.
- 2) Tighten the set screws.

### CHANGING THE BATTERIES

- 1) Pop off the plastic battery cover to gain access. Fig. 9
- 2) Install two AA batteries in the proper polarity.
- 3) Always replace both batteries and use only new alkaline standard batteries.
- 4) If you are not going to use the machine for a few days remove the batteries.



Figure 9

Laser switch and battery cover

Two AA batteries

## CUTTING SPEEDS

Factors which determine the best speed to use in any drill press operation are:

1. Kind of material being worked
2. Size of hole.
3. Type of drill bit
4. Quality of cut desired

Generally, the smaller the drill bit, the greater the required RPM. In soft material, the speed should be higher than for hard metals.

As a guide, the drill speed for a given drill bit size, is according to the table below.

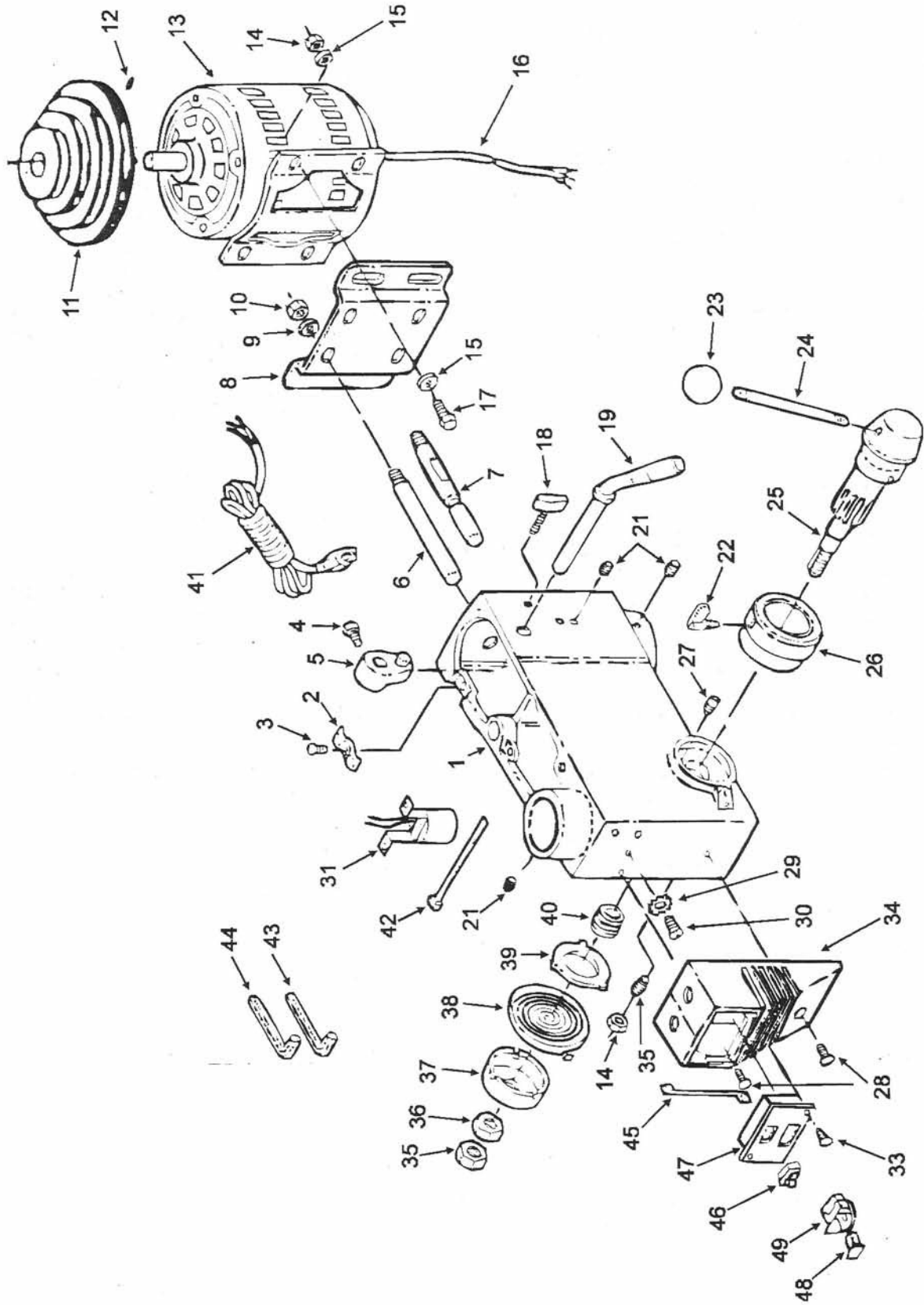
Speed Range (RPM)		4220	2530-2910	1740-2320	870-1590	580-790	390-500	260-340
Wood	in. mm.	1/4 6.4	3/8 9.5	5/8 16	- -	- -	- -	- -
Zinc Diecast	in. mm.	3/16 4.8	1/4 6.4	3/8 9.5	1/2 12.5	5.8 16	- -	- -
Alum & Brass	in. mm.	1/8 3.2	3/16 4.8	3/8 9.5	1/2 12.5	11/16 17.5	- -	- -
Plastic	in. mm.	1/8 3.2	3/16 4.8	5/16 7.9	7/16 11	1/2 12.5	5/8 16	- -
Cast Iron & Bronze	in. mm.	3/32 2.4	1/8 3.2	1/4 6.4	11/32 8.75	1/2 12.5	5/8 16	- -
Mild Steel & Malleable	in. mm.	1/16 1.6	3/32 2.4	5/32 4	1/4 6.4	3/8 9.5	1/2 12.5	- -
Cast Steel & Med Carbon	in. mm.	3/64 1.2	1/16 1.6	1/8 3.2	3/16 4.8	5/16 7.9	7/16 11	9/16 14.5
Stainless and Tool Steel	in. mm.	1/32 0.8	3/64 1.2	1/16 1.6	1/8 3.2	1/4 6.4	3/8 9.5	1/2 12.5



## TROUBLE SHOOTING

PROBLEM	PROBABLE CAUSE	REMEDY
Noisy operation (under load)	A) Incorrect belt tension B) Dry spindle C) Loose pulley D) Worn bearing	A) Adjust tension B) Remove spindle / quill assembly and lubricate C) Tighten pulley D) Replace bearing
Excessive drill wobble	A) Loose chuck B) Worn spindle, or bearing C) Worn chuck D) Bent drill bit	A) Tighten by pressing chuck down on to a block of wood against the table. B) Replace spindle shaft or bearing C) Replace chuck D) Replace drill bit
Motor won't start	A) Power supply B) Motor connection C) NVR Switch connections D) Faulty switch E) Motor windings burned	A) Check power cord/fuse B) Check motor connections C) Check switch connections D) Replace switch E) Replace motor
Drill bit binds in workpiece	A) Excessive feed pressure B) Loosen belt C) Loosen drill bit D) Incorrect drill speed E) Drill profile incorrect for type of material	A) Apply less pressure B) Check belt tension C) Tighten drill bit with key D) Refer to Cutting Speed chart, and adjust drill speed accordingly E) Consult an appropriate manual re. Materials, Drills and Cutting Angles, and sharpen drill accordingly
Drill bit burns or smokes	A) Incorrect speed B) Chips are not discharging C) Dull drill or incorrect profile for material D) Excessive feed pressure	A) Refer to Cutting Speed chart, and adjust drill speed accordingly B) Clean drill bit C) As 'E' above D) Apply less pressure
Table difficult to raise	A) Needs lubrication B) Table lock tightened	A) Lubricate with light oil B) Loosen clamp

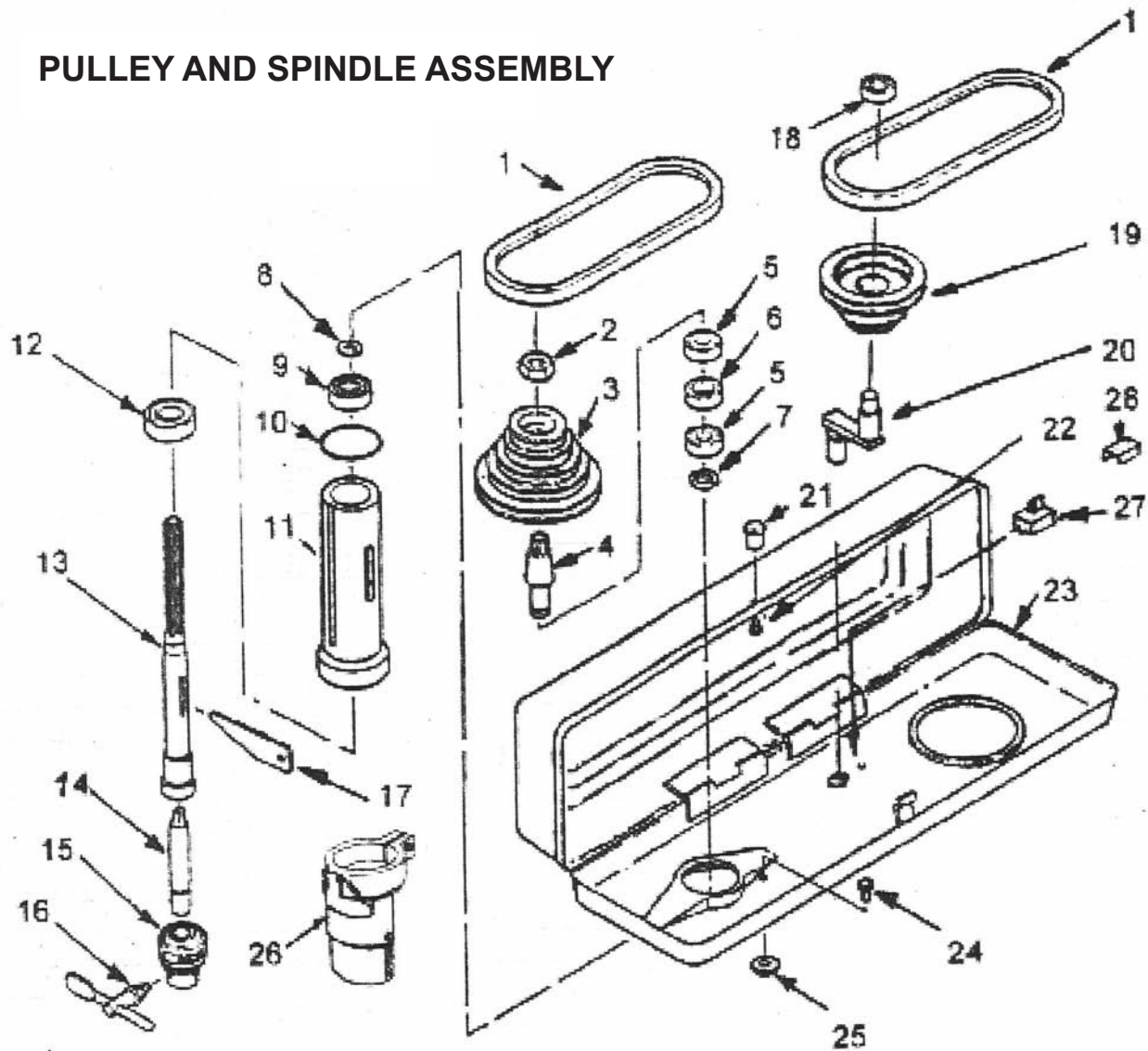
# HEAD ASSEMBLY



## HEAD ASSEMBLY PARTS LIST

No.	Description	Part No.
4120-0001	Head w/pointer & trim	DD13302001B
4120-0002	Cable Clamp	DD16102014
4120-0003	Pan Head Screw M5	3040656
4120-0004	Hex. Screw M8	3044506
4120-0005	Adjusting Lever	DD16102006
4120-0006	Motor Support Rod	DD16102003
4120-0007	Motor Support Rod	DD16102002
4120-0008	Motor Mount	DD16102007A
4120-0009	Lock washer 12mm	DDGB93-87
4120-0010	Nut Hex. M12	3040603
4120-0011	Motor Pulley	DD13305005
4120-0012	Socket Screw set	3044504
4120-0013	Motor	DDYCG90M4-01
4120-0014	Hex. Nut M8	3040601
4120-0015	Washer M8	DDGB972-85
4120-0016	Motor Cable	DD16102016B
4120-0017	Hex. Screw M8	3040502
4120-0018	Belt Tension Locking Screw	DD16102005
4120-0019	Belt Tension Lever	DD16102004
4120-0020	Roll Pin	DDGB79-86
4120-0021	Head Lock Set Screw M8	DDGB80-85
4120-0022	Depth Screw Lock	DD16104012
4120-0023	Knob	DD13304011B
4120-0024	Feed Handle	DD13204005
4120-0025	Spindle Feed Shaft	DD13304001
4120-0026	Depth Stop Collar w/Scale	DD13304003
4120-0027	Stop Pin	DD13304010
4120-0028	Connector Wire	DD13302019
4120-0029	Ext. Lock washer 5mm	DDGB8621-87
4120-0030	Pan Head Screw M5	3040485
4120-0031	Bulb Socket	DD16102013-1
4120-0032	Pan Head Screw	DDGB845-85
4120-0033	Pan Head Screw	3040495
4120-0034	Switch Box	DD13302008A
4120-0035	Screw-Special Set M8	DD13302021
4120-0036	Hex. Nut M12	3040603
4120-0037	Quill Spring Cap	DD16104008
4120-0038	Quill Spring	DD16104009
4120-0039	Quill Spring Retainer	DD16104007
4120-0040	Quill Spring Seat	DD16104006
4120-0041	Power Cable	DD13302015L
4120-0042	Cable Tie	DD16102017
4120-0043	Allen Key 4mm	DDGB5356-86
4120-0044	Allen Key 3mm	DDGB5356-86
4120-0045	Lead	DD13302029
4120-0046	Light Switch	DD16102012C
4120-0047	Switch Plate Cover	DD13202009
4120-0048	Switch Key	DD16102011
4120-0049	Locking Switch J-9301A	DD16102010B

# PULLEY AND SPINDLE ASSEMBLY

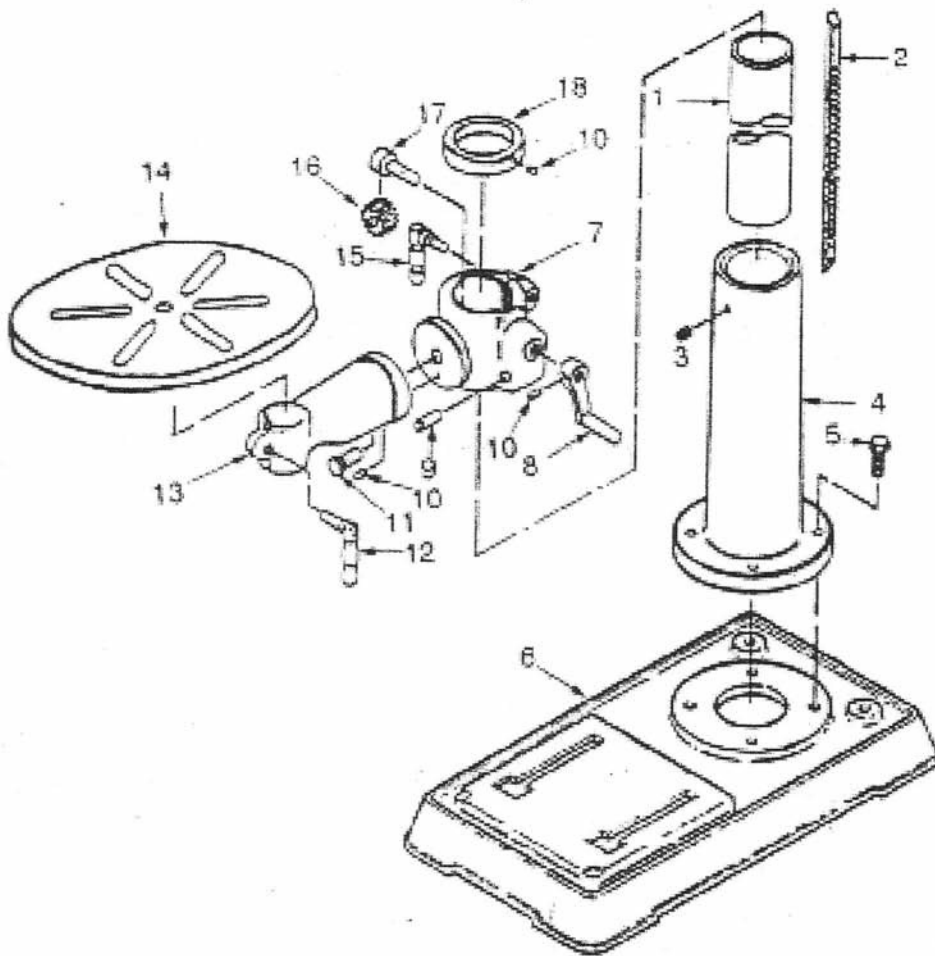


## PARTS LIST

No.	Description	Part No.	No.	Description	Part No.
4120-0001	'V' Belt M24	DD1605011	4120-0014	Arbor MT2-JT3	DD20120
4120-0002	Pulley Nut	DD13302025	4120-0015	Chuck JT3	DDJ2216
4120-0003	Spindle Pulley	DD13305009A	4120-0016	Chuck Key	DD16103010
4120-0004	Pulley Insert	DD13302022	4120-0017	Wedge Drift	DD16103008
4120-0005	Ball Brg 17mm 60203	BRG60203	4120-0018	Ball Bearing 60202	BRG60202
4120-0006	Spacer	DD13302023	4120-0019	Idler Pulley	DD13305006
4120-0007	Circlip 17mm	DDGB8941-86	4120-0020	Idler Pivot	DD16205007
4120-0008	Circlip 11mm	DDGB8941-86	4120-0021	Knob	DD16105008
4120-0009	Ball Bearing 60201	BRG60201	4120-0022	Pan Head Screw M5	3040656
4120-0010	Quill Gasket	DD13303006	4120-0023	Pulley Cover w/Lables	DD13305000
4120-0011	Quill	DD13303002	4120-0024	Washer HD Screw M6	GB90741-88
4120-0012	Ball Bearing 80202	BRG80202	4120-0025	Foam Washer	DD13105009
4120-0013	Spindle Shaft	DD13303001	4120-0026	Chuck Guard	DD16108001



## BASE, COLUMN AND TABLE ASSEMBLY



No.	Description	Part No.
4120-0001	Column	DD16101003
4120-0002	Rack	DD16101010
4120-0003	Hex Socket Screw Set	3040430
4120-0004	Column Support	DD16101002
4120-0005	Hex Socket Screw Set M10	3040508
4120-0006	Base	DD13301001
4120-0007	Table Support w/Indicator	DD16101004
4120-0008	Crank	DD13201009
4120-0009	Gear Pin	DD16101007
4120-0010	Socket Screw Set	3040487
4120-0011	Table Tilt Locking Screw M16	3040440
4120-0012	Table Clamp	DD16101013
4120-0013	Arm w/Scale	DD13301005
4120-0014	Table	DD13301014
4120-0015	Arm Locking Handle	DD16101012
4120-0016	Helical Gear	DD16101006
4120-0017	Worm	DD16101008
4120-0018	Collar	DD16101011