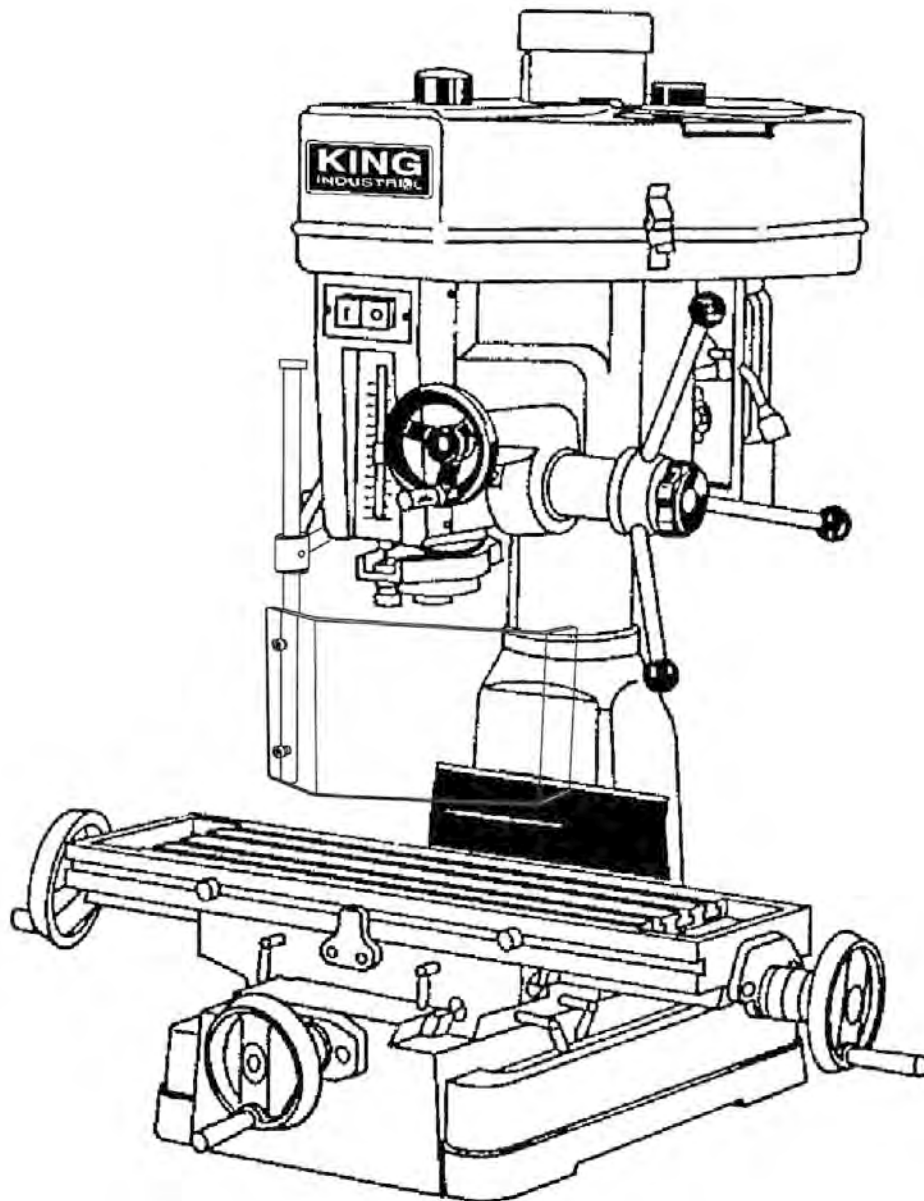




MILLING DRILLING MACHINE



MODEL: PDM-30
INSTRUCTION MANUAL

WARRANTY INFORMATION

<p>2-YEAR LIMITED WARRANTY FOR THIS MILLING DRILLING MACHINE</p>	<p>KING CANADA TOOLS OFFERS A 2-YEAR LIMITED WARRANTY FOR INDUSTRIAL USE.</p>
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PROOF OF PURCHASE

Please keep your dated proof of purchase for warranty and servicing purposes.

REPLACEMENT PARTS

Replacement parts for this product are available at our authorized King Canada service centers across Canada.

LIMITED TOOL WARRANTY

King Canada makes every effort to ensure that this product meets high quality and durability standards. King Canada warrants to the original retail consumer a 2-year limited warranty as of the date the product was purchased at retail and that each product is free from defects in materials. Warranty does not apply to defects due directly or indirectly to misuse, abuse, normal wear and tear, negligence or accidents, repairs done by an unauthorized service center, alterations and lack of maintenance. King Canada shall in no event be liable for death, injuries to persons or property or for incidental, special or consequential damages arising from the use of our products.

To take advantage of this limited warranty, return the product at your expense together with your dated proof of purchase to an authorized King Canada service center. Contact your retailer or visit our web site at www.kingcanada.com for an updated listing of our authorized service centers. In cooperation with our authorized serviced center, King Canada will either repair or replace the product if any part or parts covered under this warranty which examination proves to be defective in workmanship or material during the warranty period.

KING CANADA INC. DORVAL, QUÉBEC, CANADA H9P 2Y4

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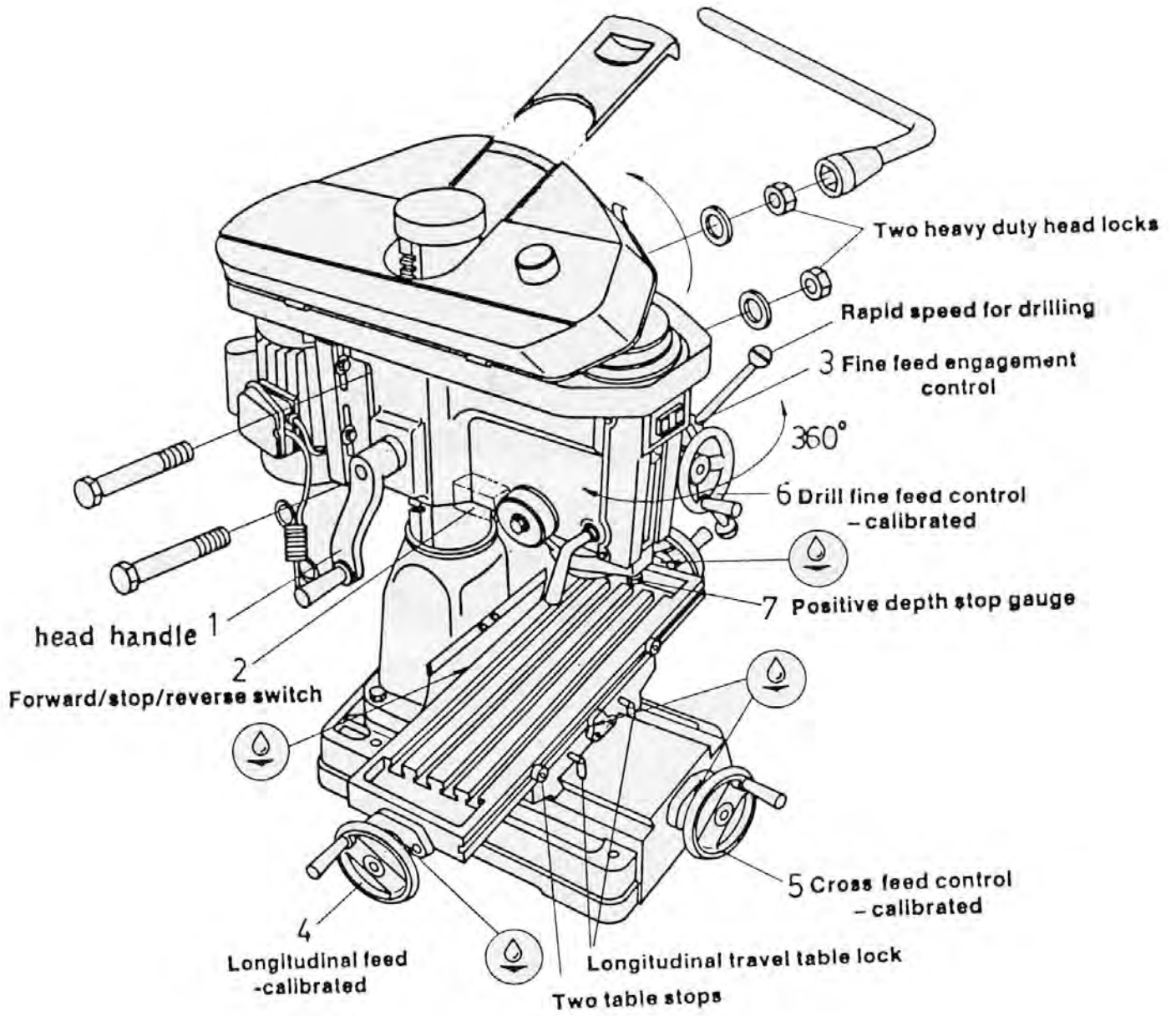


Fig. 1

1.

SPECIFICATION

MODEL	PDM-30	
Drilling capacity	32mm (1¼")	
Face mill capacity	76mm (3")	
End mill capacity	20mm (¾")	
Swing	405mm (15-7/8")	
Max. distance spindle nose to table	480mm (18")	
Spindle taper	M.T. 3 R-8	
Spindle stroke	130mm (5")	
Diameter of Spindle sleeve	75mm (3")	
Head swivel	360°	
Diameter of column	115mm (4-1/2")	
Overall height (w/o stand)	1100mm (43-1/2")	
Machine stand height	760mm (30")	
Length	1080mm (42-1/2")	
Width	1010mm (39-3/4")	
Motor	1-1/2HP – 2HP	
Spindle speed (r.p.m.)	12S 60Hz	120-2500 (4 pole)
Standard accessories	3"-cutter 1/2" chuck 3½" angle vise	
Forward and backward travel of Table	175mm (7")	
Right and left travel of table	500mm (19-3/4")	
Working area of table	730mm x 210mm (28¾" x 8¼")	
Gross weight	300 kgs (660 lbs)	
Measurement	27.2 Cuft	

2. FEATURES:

- (1) This machine has several uses, such as surface cutting, drilling, milling, and also can be equipped with an electric switch for tapping.
- (2) This machine is of fine quality, can be operated easily, and it is not limited to skilled operators.
- (3) The drilling and milling operation can be performed by two methods:
 - 1) Hand operation, which makes quick drilling.
 - 2) Worm gear feed operation, which makes slow milling.
- (4) Bronze adjustable nuts, which adjust the thread clearance and reduce the wear. They also make screws rotated smoothly and increase the thread accuracy.
- (5) Whole column which makes this machine strong, stable, and also keep the high accuracy.
- (6) Head of tough cast ensures its accuracy lasting and enduring through the treatment of precise boring, cylinder, grinding, and internal stress relief.
- (7) To adjust belt and change speed, new pulley cover is easy to open the cover.

3. MOUNTING MACHINE

- (1) Be sure to fix the head on the column and put the hanger on the head before moving machine. While moving machine, please keep its balance and safety.
- (2) Do not mount machine at the sunshine place to avoid the deformity of machine and the loss of accuracy.
- (3) Check to see if the motor turning in clockwise direction before connecting the electric distribution line.
- (4) Mount machine to a sturdy table or base. It is advisable that the table you choose be well constructed to avoid any vibration during operation.
- (5) Four holes are provided on the machine base for mounting. Before tightening bolts make sure the work table on the machine is level lengthwise and crosswise. Use shims if necessary.

4. CLEANING & LUBRICATING

- (1) Your machine has been coated with a heavy grease to protect it in shipping. This coating should be completely removed before operating the machine. Commercial degreaser, kerosene or similar solvent may be used to remove the grease from the machine, but avoid getting solvent on belts or other rubber parts.
- (2) After cleaning, coat all bright work with a light lubricant. Lubricate all points in Fig. 1 with a medium consistency machine oil.
- (3) Lubricating points as shown in arrows.

5. USE OF MAIN MACHINE PARTS (See Fig. 1)

- (1) To raise and lower the head by head handle.
- (2) Equipped with an electric switch for tapping operation clockwise or counterclockwise.
- (3) To adjust the quick or slow feeding by feed handle.
- (4) To adjust the table left and right travel by table handle wheel.
- (5) To adjust the table fore and aft travel by table handle wheel.
- (6) To operate the spindle handle wheel for micro feed.
- (7) To adjust the scale size according to working need.

6. PRECAUTION FOR OPERATION

Check all parts for proper condition before operation; if normal safety precautions are noticed carefully, this machine can provide you withstanding of accurate service.

(1) Before Operation

- (a) Fill the lubricant.
- (b) In order to keep the accurate precision, the table must be free from dust and oil deposits.
- (c) Check to see that the tools are correctly set and the workpiece is set firmly.
- (d) Be sure the speed is not set too fast.
- (e) Be sure everything is ready before use.

(2) After Operation

- (a) Turn off the electric switch.
- (b) Turn down the tools.
- (c) Clean the machine and coat it with lubricant.
- (d) Cover the machine with cloth to keep out the dust.

(3) Adjustment of Head

- (a) To raise and lower the head, loosen the two heavy duty head lock nuts shown in Fig. 1. Use the left side head handle to raise and lower the head on its rack and pinion mechanism. When the desired height is reached, tighten the bolts to avoid vibration.
- (b) Head may be rotated 360° by loosening the same bolts mentioned above. Adjust the head to the desired angle, then fix the heavy duty head locknuts. It is Tighten the same time to fix the head if drilling & milling too much.

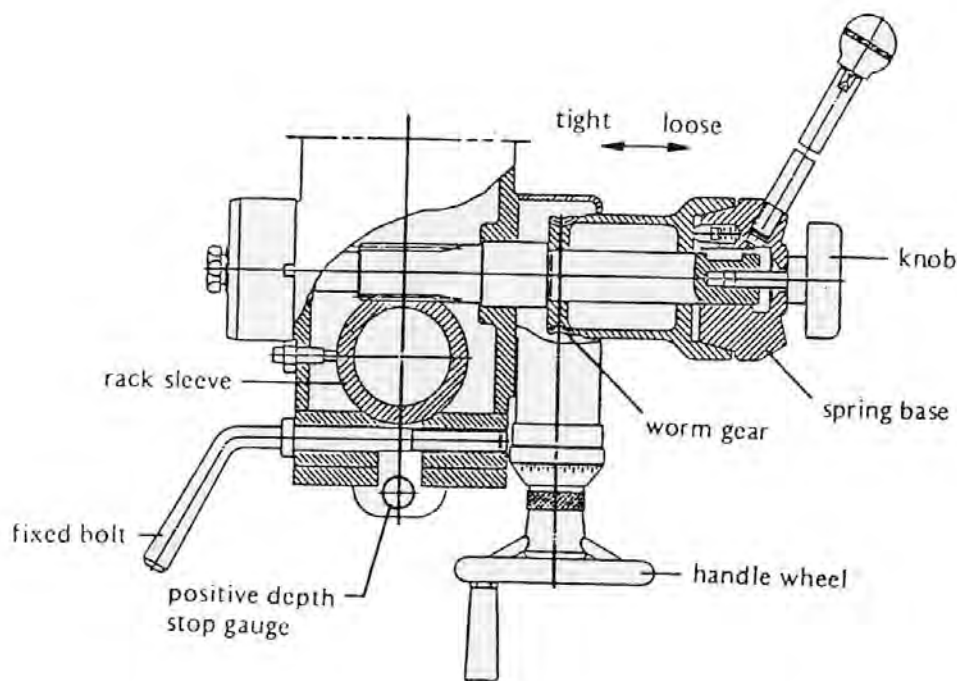


Fig. 2

- (4) Preparing for Drilling (see fig. 2) (Except addition power feed system).
Turn of the knob make loose the taper body of worm gear and spring base . Then we decide spindle stroke setting the positive depth stop gauge for drilling blind hole or Free state for pass hole.
- (5) Preparing for Milling (see fig. 2) (Except addition power feed system).
 - (a) Adjust the positive depth stop gauge to highest point position.
 - (b) Turn tight of the knob be use to taper friction force coupling the worm gear and spring base. Then turning the handle wheel by micro set the sprindle of work piece machining height.
 - (c) Lock the rack sleeve at the desired height with fixed bolt.

7. ADJUSTING TABLE SLACK AND COMPENSATE FOR WEAR (see fig. 3)

- (1) Your machine is equipped with Jib strip adjustment to compensate for wear and excess slack on cross and longitudinal travel.
- (2) Clockwise rotation the job strip bolt with a big screw for excess slack otherwise a little counter clockwise if too tight.
- (3) Adjust the jib strip bolt until feel a slight drag when shifting the table.

8. CLAMPING, TABLE BASE, AND MACHINE BASE (See Fig. 3)

- (1) When milling longitudinal feed, it is advisable to lock the cross feed table travel to insure the accuracy of your work. To do this, tighten the small leaf screw located on the right side of the table base.
- (2) To tighten the longitudinal feed travel of the table for cross feed milling, tighten the two small leaf screw on the front of the table base.
- (3) Adjustable travel stops are provided on the front of the table for control of cross travel and the desired milling length.

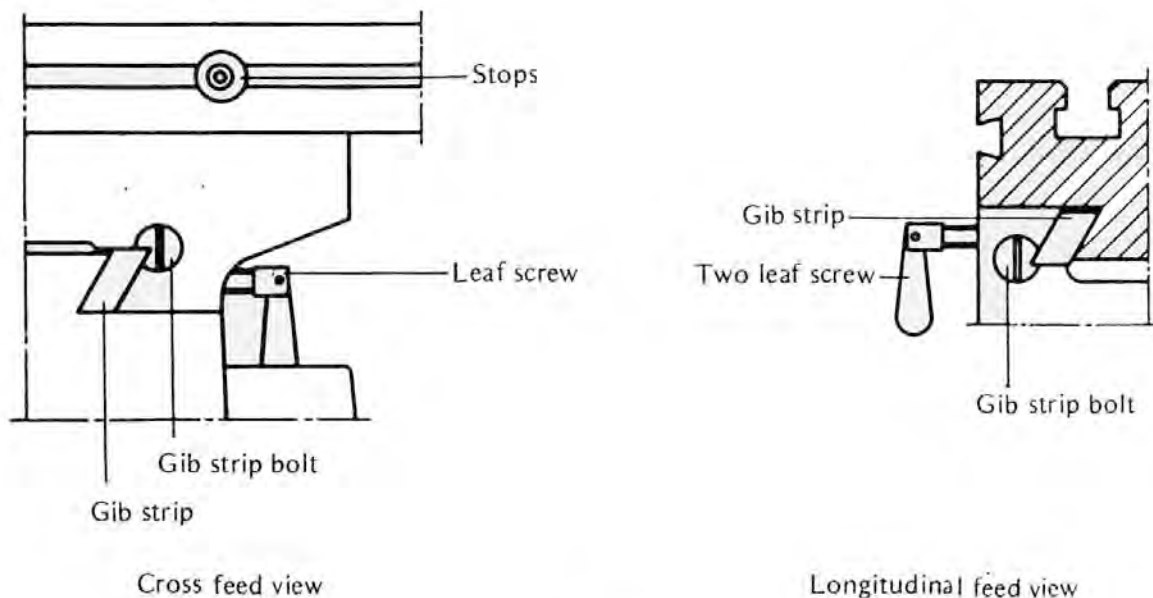


Fig. 3

9. SPEED CHANGING AND ADJUST BELT (Step See Fig. 4)

- (1) Turn power off.
- (2) Open belt cover by releasing side latches step see (a) (b) (c)
- (3) Loosen motor mount leaf screw.
- (4) Push motor in order to loosen belts (head side of motor mount is set fixed, two motor's ear side with motor screw to tighten or loosen of belts.)
- (5) Loosen two screws of base for speed change inter pulley that also adjust the location of base for speed change inter pulley.
- (6) Select the suitable R.P.M. from speed charts of Fig. 5 Then place the belts on the desired pulley steps.
- (7) Tighten two screws of base for speed change pulley and the bolt of motor mount lock.
- (8) Cover the belt cover with counter step (2) after turn power on;

12 SPEEDS		BELT	12 SPEEDS		BELT
50 ~	60 ~		50 ~	60 ~	
100	120	4-5	640	770	1-6
160	190	3-5	865	1040	2-7
190	230	4-6	1010	1220	3-8
235	285	2-5	1205	1450	1-7
305	370	3-6	1500	1800	2-8
365	440	4-7	2080	2500	1-8

Fig. 5

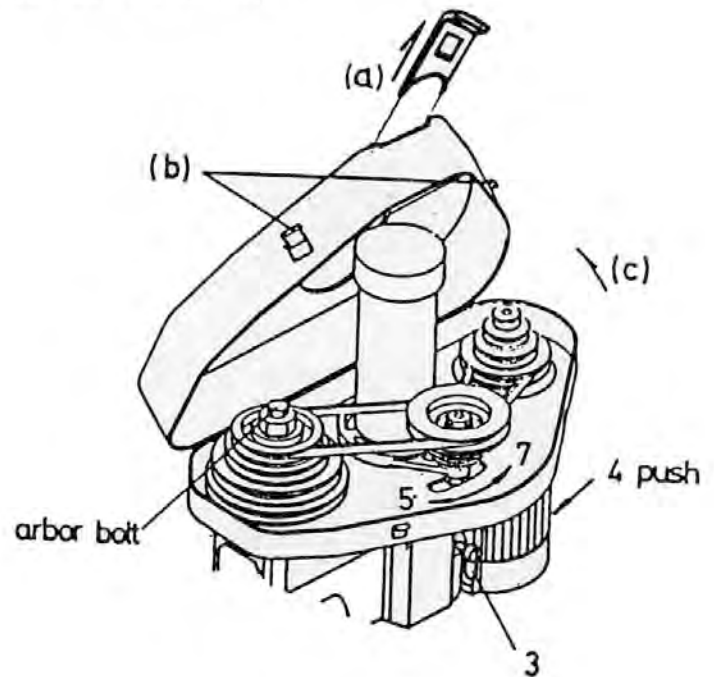


Fig. 4

10. TO CHANGE TOOLS

- (1) Removing Face Mill or Drill Chuck Arbor
Loosen the arbor bolt (see fig. 4) at the top of the spindle shaft approximately 2 turns with a wrench. Rap the top of the arbor bolt with a mallet.
After taper has been broken loose, holding chuck arbor on hand and turn detach the arbor bolt with the other hand.
- (2) To Install Face Mill or Cutter Arbor
Insert cutter and cutter arbor into the taper of spindle. Tighten arbor bolt detach securely, but do not overtighten.
- (3) Removing Taper Drills
 - (a) Turn down the arbor bolt and insert the taper drill into the spindle shaft.
 - (b) Turn the rapid down handle rod down until the oblong hole in the rack sleeve appears. Line up this hole with the hole in the spindle. Insert key punch key through holes and strike lightly with a mallet. This will force the taper drill out.

11. ORDERING REPLACEMENT PARTS

Complete parts list is attached. If parts are needed, contact your local distributor.

12. EXTRA TOOLING AND ACCESSORIES

Each of machine is equipped with a MT # 3 spindle taper or a R-8 spindle taper (examples below). Contact your local distributor or a major cutting tool distributor to obtain any of these accessories.

Taper Drills
Reamers
End Mills
Cutter Arbor
Taps
Collets
Adapters and Sleeves

13. TAPPING EQUIPMENT

This machine can be equipped with an electric switch for tapping operation clockwise or counterclockwise, and the working depth also can be adjusted by the limit switch. (Electric switch will be installed according to your requirement, and you must pay the cost only.)

14. SPECIFICATION OF T-SOLT

The size of T-Solt on table as Fig 6:

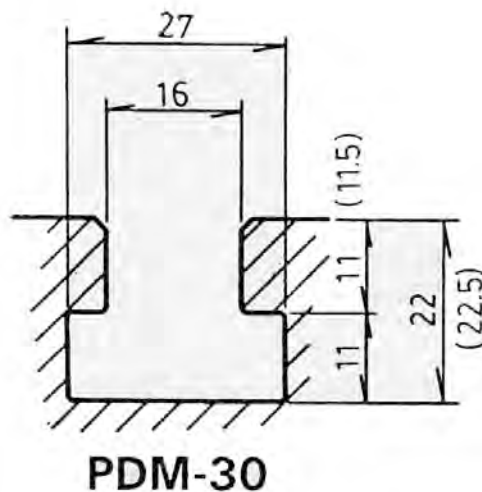


Fig. 6

15. TROUBLE SHOOTING

- (1) No running after switch on:
 - (a) Main switch interruption while volts irregular - Adjust input voltage and draw back the main switch.
 - (b) Break down of fuse in switch box - Replace with new one.
 - (c) In case of too much current, the overload relay jumps away automatically - Press the overload relay, and it will return to the correct position:

- (2) Motor Overheat and No Power:
 - (a) Overload - Decrease the load of feed.
 - (b) Lower voltage - Adjust to accurate voltage.
 - (c) Spoiled contact point of magnetic switch - Replace with new one.
 - (d) Breakdown of overload relay - Connect it or replace with new one.
 - (e) Motor is poor - Replace with new one.
 - (f) Break down of fuse or poor contact with wire (it is easily to spoil motor while short circuit) - Switch off power source at once and replace fuse with new one.
 - (g) The tension of pulley V-belt too tight - Adjust for proper tension of V-Belt.
 - (h) If this machine with the tapping attachment, there is an aid plum screw fix on the motor mount in order to avoid the motor pulleys shake while turning.
- (3) The temperature of spindle bearing is too hot:
 - (a) Grease is insufficient - Fill the grease.
 - (b) The spindle bearing is fixed too tight - Turning with no speed and feel the tightness with hand.
 - (c) Turning with high speed for a long time - Turn it to lightly cutting.
- (4) Lack of power with main spindle revolving:
 - (a) The tension of V-belt too loose - Adjust for proper tension of V-belt.
 - (b) Motor has burned out - Change a new motor.
 - (c) Fuse has burned out - Replace with new one.
- (5) Table travel has not balanced:
 - (a) The gap of spindle taper too wide - Adjust bolt in proper.
 - (b) Loosening of leaf bolt - Turn and fasten in place.
 - (c) Feed too deep - Decrease depth of feed.
- (6) Shake of spindle and roughness of working surface has taken place during performance:
 - (a) The gap of spindle bearing too wide - Adjust the gap in proper or replace bearing with new one.
 - (b) Spindle loosening up and down - Make two of inner bearing covers on the top tight each other. Do not overtighten two inner bearing covers with the taper bearing; it is ok as long as no gap between them.
 - (c) The gap of taper sliding plate too Wide - Adjust the tension of bolt in proper.
 - (d) Loosening of chuck - Fasten chuck.
 - (e) Cutter is dull - Resharpen it.
 - (f) Workpiece has not hold firmly - Be sure to tighten workpiece.
- (7) Micro feed does not work smoothly:
 - (a) Loosening of clutch - Be sure to tighten it.
 - (b) Worm and worm shaft has worn out - Replace with new one.
 - (c) Loosening of handwheel fixed screw - Be sure to tighten it.
- (8) Without accuracy in performance:
 - (a) Imbalance of heavy workpiece - Must be considerate of the principle of balance while holding workpiece.
 - (b) Often use of hammer to strike workpiece - Forbidden to use hammer to strike workpiece.
 - (c) Unaccurate horizontal table - Check and maintain table for keeping accurate horizontal after a period of use.

16. MAINTAINING

That's easier to keep machine in good condition or best performance by means of maintaining it at any time than remedy it after it is out of order.

(1) Daily Maintenance (by operator)

- (a) Fill the lubricant before starting machine everyday.
- (b) If the temperature of spindle caused overheating or strange noise, stop machine immediately to check it for keeping accurate performance.
- (c) Keep work area clean; release vise, cutter, workpiece from table; switch off power source; take chip or dust away from machine and follow instructions lubricating or coating rust-proof oil before leaving.

(2) Weekly Maintenance

- (a) Clean and coat the cross leading screw with oil.
- (b) Check to see if sliding surface and turning parts lack of lubricant. If the lubricant is insufficient, fill it.

(3) Monthly Maintenance

- (a) Adjust the accurate gap of slide both on cross and longitudinal feed.
- (b) Lubricate bearing, worm, and worm shaft to avoid wear.

(4) Yearly Maintenance

- (a) Adjust table to horizontal position for maintenance of accuracy.
- (b) Check electric cord, plugs, switches at least once a year to avoid loosening or wearing.

PARTS DIAGRAM & PARTS LISTS

Refer to the Parts section of the King Canada web site for the most updated parts diagram and parts list.