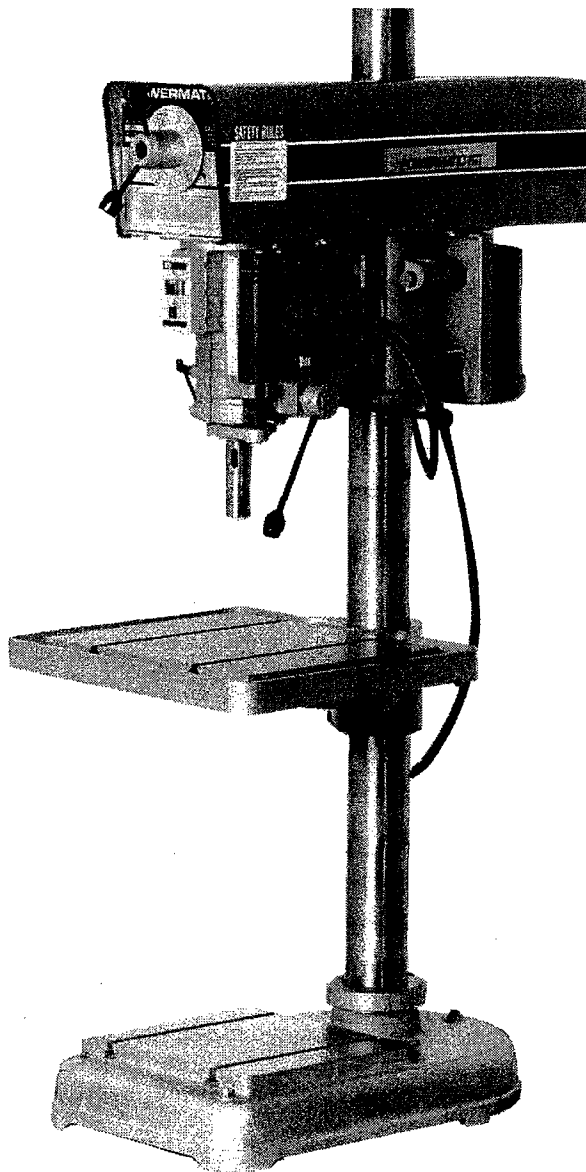


20" Drill Press

Model 1200



Better By Design™

0460139

 **POWERMATIC**[®]
CORPORATION

FOREWORD

This manual has been prepared for the owner and those responsible for the operation of a Powermatic Model 1200 Drill Press. Its purpose, aside from tool operation, is to promote safety through the use of accepted correct operating and maintenance procedures. Read the safety and maintenance instructions thoroughly before operating or servicing the tool. In order to obtain maximum life and efficiency from your Powermatic drill press and to aid in operating and maintaining the machine with safety, read this manual thoroughly and follow all instructions carefully.

WARRANTY

Powermatic Corporation, 619 Morrison Street, McMinnville, Tennessee 37110

("Powermatic") warrants to its authorized distributors of Powermatic products and the original purchasers from such distributors, all products sold by Powermatic to be free of defects in material and workmanship for a period of twelve (12) months from the date of delivery from its authorized distributors or 2000 hours of use, whichever occurs first. During said warranty period Powermatic will, at its option, repair or replace any product (or component part thereof) proving defective during said period. This warranty applies only to products which are used in accordance with all instructions as to operation, maintenance and safety set forth in the catalogs, manuals, and/or instruction sets furnished by Powermatic. This warranty becomes effective only if the accompanying card is fully and properly completed and returned to Powermatic within ten (10) days from date of delivery to the original purchaser.

This warranty does not apply to items that would normally be consumed or require replacement due to normal wear (blades, lubricants, etc.); to electrical motors and components which are warranted by their manufacturer; or the costs of removal, shipment for service and reinstallation. Claims relating to electrical components must be taken to the component manufacturer's local authorized repair station for service.

This warranty is null and void if the product has been subjected to (1) misuse, abuse or improper service or storage; (2) accident, neglect, damage or other circumstances beyond Powermatic's control; (3) modifications, disassembly tampering, alterations or repairs outside of Powermatic's factory not authorized by Powermatic; or to any product not bearing its original serial number plate. This warranty does not apply to normal wear and tear, corrosion, abrasion, or repairs required due to natural causes or acts of God.

To obtain the fastest possible warranty service you must first notify in writing the authorized Powermatic distributor from whom you purchased the product specifying (1) the product by catalog number and serial number, (2) the date the product was delivered to you, (3) a description of the problem for which you seek warranty service, and (4) evidence of proof of purchase. Should circumstances prohibit you contacting the distributor then contact the Powermatic factory directly. If your claim is covered by this warranty, your Powermatic distributor will provide you with instructions as to how and where service will be provided. On simple warranty replacement or repairs, installations instructions will be provided to allow correction by customer personnel. Powermatic assumes no responsibility for products which are returned without its prior written authorization. Powermatic's obligation under this warranty shall be exclusively limited to repairing or replacing (at Powermatic's option) products which are determined by Powermatic to be defective upon delivery, F.O.B. (return freight paid by customer) Powermatic's factory, and on inspection by Powermatic. In no event shall Powermatic's liability under this warranty exceed the purchase price paid for the product.

THIS IS POWERMATIC'S SOLE WRITTEN WARRANTY. ANY AND ALL OTHER WARRANTIES WHICH MAY BE IMPLIED BY LAW, INCLUDING ANY WARRANTIES FOR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY LIMITED TO THE DURATION OF THIS WRITTEN WARRANTY. POWERMATIC SHALL NOT BE LIABLE FOR ANY LOSS, DAMAGE, OR EXPENSE DIRECTLY OR INDIRECTLY RELATED TO THE USE OF ITS PRODUCTS OR FROM ANY OTHER CAUSE OR FOR CONSEQUENTIAL DAMAGES (INCLUDING WITHOUT LIMITATION, LOSS OF TIME, INCONVENIENCE, AND LOSS OF PRODUCTION). THE WARRANTY CONTAINED HEREIN MAY NOT BE MODIFIED AND NO OTHER WARRANTY, EXPRESSED OR IMPLIED, SHALL BE MADE BY OR ON BEHALF OF POWERMATIC.

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SAFETY INSTRUCTIONS

1. **Read, understand and follow** the safety and operating instructions found in this manual. Know the limitations and hazards associated with a 1200 Drill Press. A safety rules decal is installed on the belt guard of this machine to serve as a reminder of basic safety practice.
2. **Grounding the drill press:** Make certain that the machine frame is electrically grounded and that a grounding lead is included in the incoming electrical service. In cases where a cord and plug are used, make certain that the grounding lug connects to a suitable ground. Follow the grounding procedure indicated by the National Electric Code.
3. **Eye Safety:** Wear an approved safety face shield, goggles or glasses to protect eyes when operating the drill press.
4. **Personal Protection:** Before operating the machine, remove tie, rings, watch and other jewelry and roll up sleeves above the elbow. Remove all outer loose clothing and confine long hair. Protective type footwear should be worn. Hearing protectors should be used where noise exceeds the level of exposure allowed in Section 1910.95 of the OSHA regulations. Do not wear gloves.
5. **Work Area:** Keep the floor around the machine clean and free of tools, tooling, stock scrap and other foreign material, and oil, grease or coolant to minimize the danger of tripping or slipping. Be sure the table is free of chips, tools and everything else not required for the task to be performed. Powermatic recommends the use of anti-skid floor strips on the floor area where the operator normally stands and that each machine's work area be marked off. Make certain the work area is well lighted and ventilated. Provide for adequate work space around the machine.
6. **Guards:** Keep all machine guards in place at all times when the machine is in use. Do not operate the machine with the guard off.
7. **Do Not Overreach:** Maintain a balanced stance and keep your body under control at all times.
8. **Maintain Tools in Top Condition:** Keep tools sharp and clean for safe and best performance. Dull tools can increase the feed force required and can result in burning the stock or seizing up, causing the work to be pulled free from its holding device. Dull or improperly sharpened drills will not produce a straight hole.
9. **Use the Proper Speed and Feed:** Tables are provided on pages 17-20 as a guide in selecting the correct speed and feed rate for a variety of materials. For materials not shown, consult the material supplier for correct speed and feed rate. Adjust speed on variable speed models only with the power on. On step cone models, make sure power is off and the spindle has come to a complete stop before opening the access door to change speeds.
10. **Never Drill Freehand:** Always block or clamp the work piece. A drill bit or tap can seize up causing the work piece, jig, or fixture to rotate with the spindle and can cause serious injury.
11. **Remove Key Chucks:** When a key chuck is used, remove it immediately after using it to lock or unlock a tool in the chuck. If it is not removed, starting the spindle can cause it to be thrown off the chuck and could result in serious injury.
12. **Hand Safety:** Keep hands away from the spindle when the machine is under power. Never clear chips when the spindle is under power and never use the hands to clear chips; use a brush or chip rake. Chips are razor sharp and can cause serious injury. **Do Not Change Tools with the Spindle Rotating Under Power.**
13. **Spindle Rotation:** Be sure the rotation of the spindle is correct for the tool being used.
14. **Machine Adjustments:** Make all machine adjustments with power off except speed on a variable speed model or feed rate on machine equipped with power feed.
15. **Machine Capacity:** Do not attempt to use the machine beyond its stated capacity or for operations requiring more than the rated horsepower of the motor. This type use will reduce the productive life of the machine and could cause the breakage of parts which could result in personal injury.
16. **Avoid Accidental Starting:** Make certain the motor switch is in the "off" position before connecting power to the machine.
17. **Careless Acts:** Give the work you are doing your undivided attention. Looking around, carrying on a conversation, and "horseplay" are careless acts that can result in serious injury.

18. **Job Completion:** If the operator leaves the machine area for any reason, the drill press should be turned off and the spindle come to a complete stop before he departs. In addition, if the operation is complete, he should clean the machine and work area. Never clean the machine with power on and never clean chips with the hands; use a brush or chip rake.

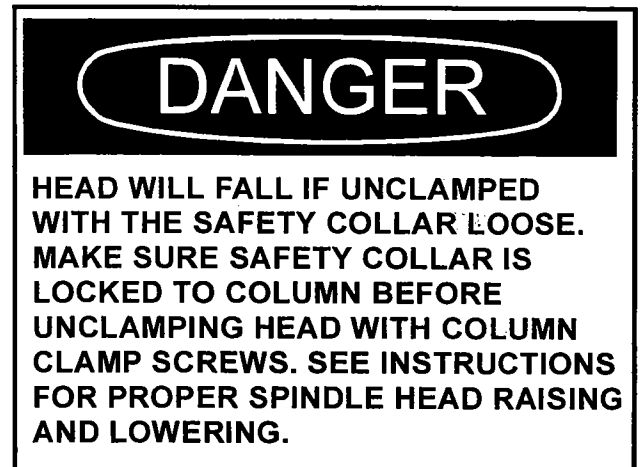
19. **Disconnect Machine:** Before performing any service or maintenance and when changing tools.

20. **Replacement Parts:** Use only Powermatic or factory authorized replacement parts and accessories; otherwise, the drill press warranty and guarantee will be null and void.

21. **Misuse:** Do not use the 1200 Drill Press for other than its intended use. If used for other purposes, Powermatic disclaims any real or implied warranty and holds itself harmless for any injury that may result from the use. Do not equip a 1200 Drill Press with a motor larger than 2 horsepower nor with a motor with a speed greater than 1800 rpm unless specifically authorized to do so in writing by Powermatic.

SAFETY: DECALS (1200 Drill Press)

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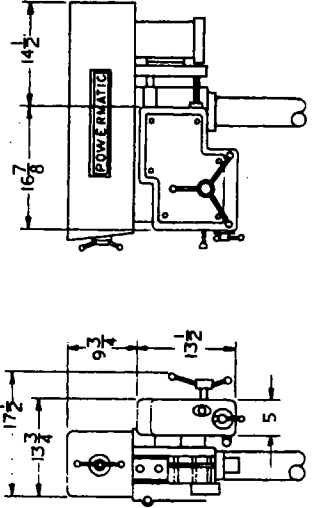
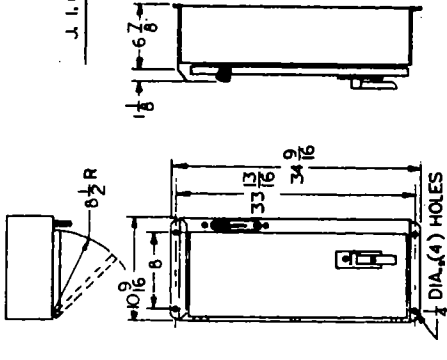
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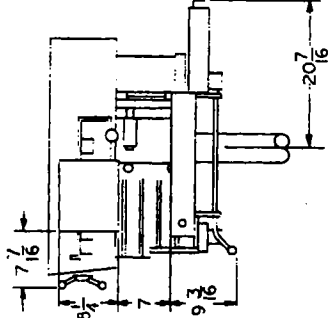
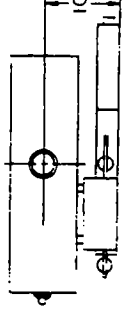
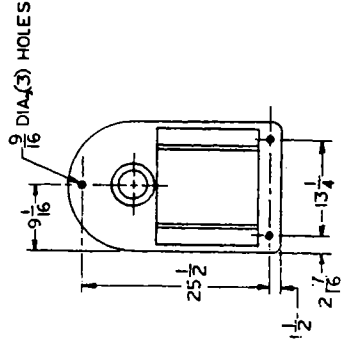
DIMENSIONAL DRAWING

J. I. C. CONTROL

NOTE:
STARTER CONNECTED TO
MACHINE BY 8 FT. CONDUIT
WALL OR POST MOUNT,
BETWEEN 2 1/2 & 7 FT.
HIGH AND NOT MORE
THAN 6 FT. FROM MACH.

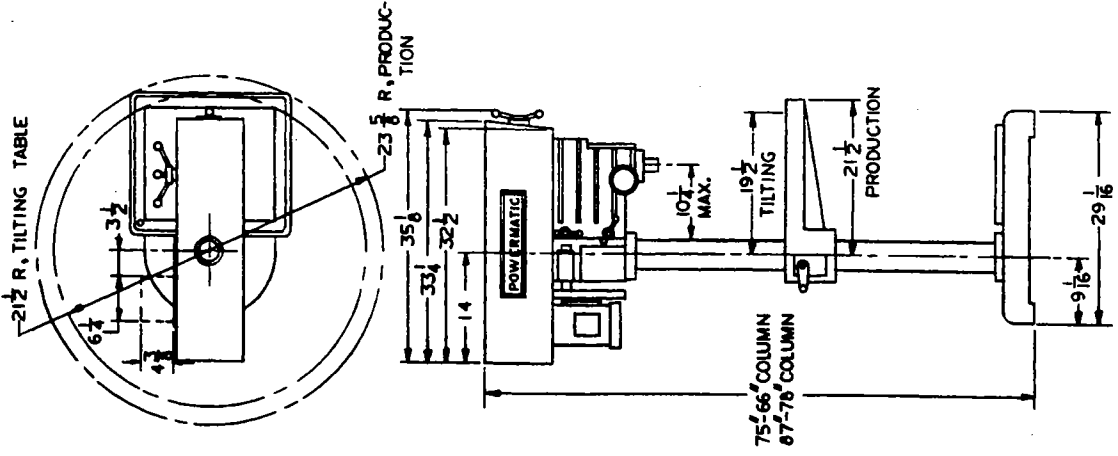
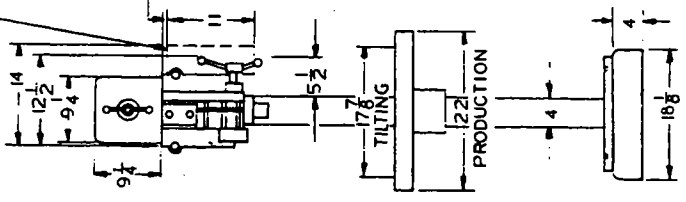


WITH MECHANICAL FEED



WITH AIR FEED

OPT. MAG.
STARTER,
KNOCKOUT
SIZES
2-1"
2-3/4"
2-1/2"



SPECIFICATIONS 1200 Drill Press

Spindle; Steel	6-spline, No. 3 Morse taper	
Spindle Travel	6"	
Quill Diameter	2-3/4"	
Column Outside Diameter	4"	
Column Wall Thickness	1/2"	
Column Length, Floor Model	66"	
Column Length, Bench Model	42"	
Table Working Surface:		
Tilting Table	15-7/8" x 17-7/8"	
Production Table	15-1/2" x 18"	
Base Working Surface	13-1/2" x 18"	
Throat Depth	Drills to center of 20" dia.	
Capacity in Steel - 1 HP	3/4"	
Capacity in Cast Iron - 1 HP	1"	
Capacity in Steel - 1-1/2 HP	7/8"	
Capacity in Cast Iron - 1-1/2 HP	1-1/8"	
Spindle Nose to:	TABLE	BASE
Floor Model	35-3/8"	45-1/2"
Bench Model	25-1/4"	
T-slots use Standard T-Bolts	1/2"	
Spindle Speeds:		
Variable Speed Models		
1800 RPM Motor	200-2000 RPM	
1200 RPM Motor	135-1350 RPM	
Step Pulley Models		
1800 RPM Motor	240-380-600-1500 RPM	
1200 RPM Motor	160-260-400-610-1000 RPM	
2 speed, 1800/900 RPM Motor	120-190-240-300-380-450-600-750-900-1500 RPM	
Approximate Weight Floor		
Models w/o Power Feed	600 lbs.	
Approximate Weight Bench		
Models w/o Power Feed	485 lbs.	
Approximate Weight Multiple Spindle Drills w/o Power Feed		
2 Spindle	1270 lbs.	
3 Spindle	2000 lbs.	
4 Spindle	2330 lbs.	
6 Spindle	3500 lbs.	
8 Spindle	4600 lbs.	
Belts:		
Variable Speed	No. 6077053 (1922V443)	
Step Cone	No. 6077041 (5L-460)	
Spindle Drive	No. 6077076 (7M710) (set of 2)	

INSTALLATION, ADJUSTMENTS & MAINTENANCE

RECEIVING

Remove drill press from shipping container and check for damage. Report any damage to the carrier and to your distributor immediately. Attach accessories shipped with drill press, then clean protective coating from table, column, base and spindle with a good commercial solvent. Read instruction manual thoroughly for assembly alignment, maintenance and safety instructions.

INSTALLATION

Mount machine on a solid foundation and lag to the floor through holes provided in base of drill press. The head and table of the machine have been lowered on the column for convenience in packaging.

1. Using a crane and a sling with blocks to prevent damage to the guard, place a sling under the head near the column on the spindle side.
2. Loosen the two binders clamping the head to the column and raise the head to the desired height. Move the safety collar to a position under the head by loosening the two setscrews, sliding the collar up, and relocking the setscrews.
3. Remove the sling and clamp the head in position.
4. Using the crane and sling, unlock the table binder and raise the table height enough to install the table raising rack.
5. Install the rack by placing it in the notched area in the lower collar and driving the roll pin through the hole in the rack and through both ears on the collar.
6. Position the rack to engage the table raising gearing and lower the table until the rack engages the rack pinion.
7. Lower the crane to put slack in the sling, engage the table raising lever and lower the table on to the rack. Visually align the table with the base, lock the table binder and remove the sling.

MULTIPLE SPINDLE MODELS

In the case of multiple spindle models, the legs are not attached to the table, they are packed separately. To assemble the legs to multiple spindle models, carefully support machine on forklift tines or other temporary supports and bolt legs securely into position. The tables of multiple spindle models are at times shipped in more than one piece. In joining table halves, use alignment pins provided before securing bolts. These pins guarantee precision table surfaces. It is imperative that multiple spindle tables be carefully leveled. Use a precision level and level using the jackscrews provided in the legs. Lag machine to floor through holes provided with leveling screws (3/8" dia. lag screws).

MOTOR INSTALLATION

Step Pulley Models:

If your machine was ordered less motor, or if the motor is being replaced, the following instructions will make installation easier. NOTE: The spindle drive belts between the countershaft and spline driver must be adjusted first before adjusting the motor belt.

- a. Place motor pulley on motor shaft and insert key.
- b. Raise drill press table as shown in Figure 1. Place motor upright on table and install motor to motor mount, using (4) 5/16" x 5/8" hex nuts. Align motor and spindle pulley and tighten motor pulley set screws.
- c. Rotate clamp handle clockwise to free motor base. Place the belt in the second groove up from the bottom. Loosen the setscrews locking the support posts to the head casting, and jack the motor base assembly back with the lock nut on the adjusting stud. Check the belt tension by rotating the clamp handle counterclockwise to cam the motor base back. Do not over tension the belt. Lock the post set-screws and the jam nuts of the adjusting stud on each side of the motor base support.

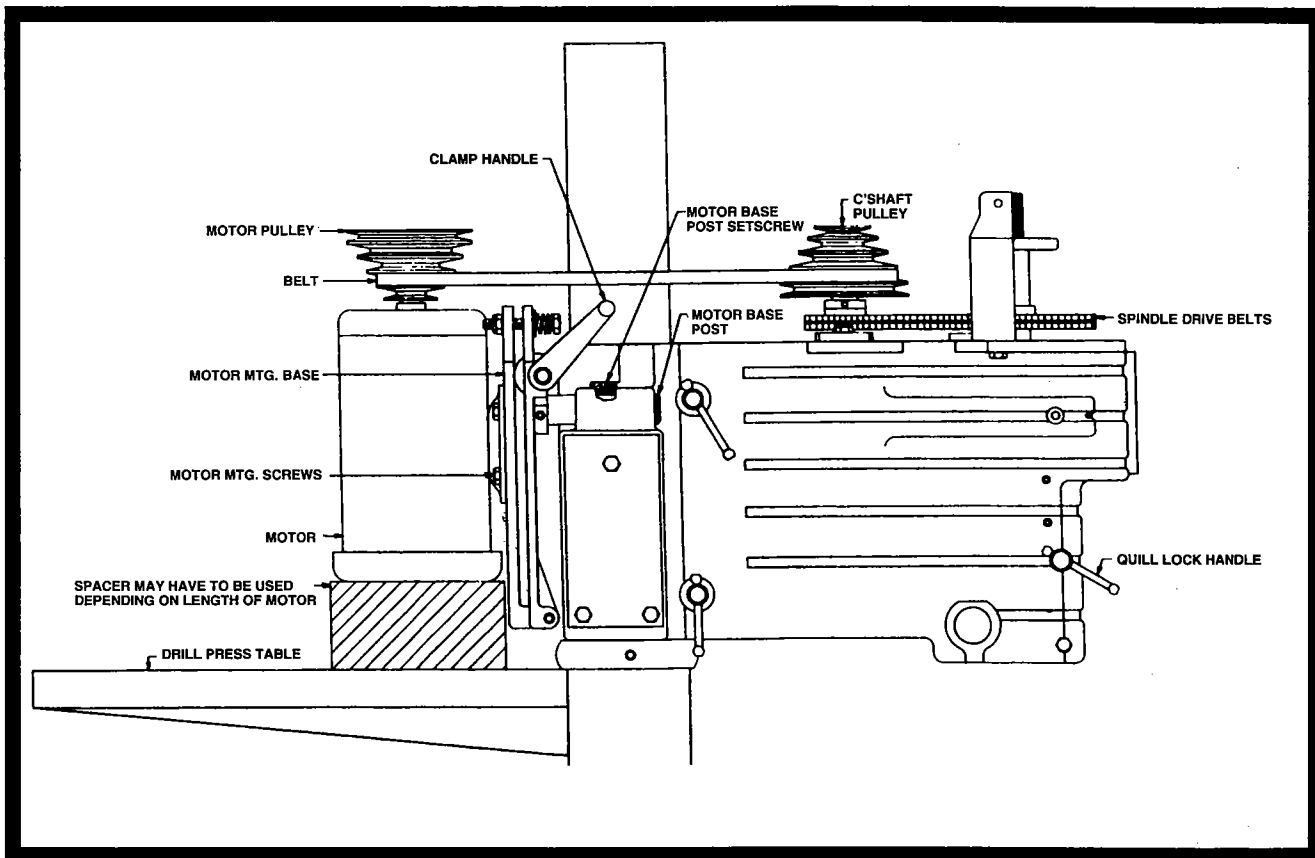


FIGURE 1
MOTOR INSTALLATION - Step Pulley Models

Variable Speed Models:

Powermatic prefers to ship all variable speed drill presses with the motors installed. However, if the machine was ordered less motor, or a motor is being replaced, follow the instructions listed below (Figure 2).

- a. Remove variable speed control cam by removing the center shoulder bolt, spring and washers, Figure 3. Remove the four 5/16" guard retaining screws and lift the guard from the machine.
- b. Install the variable speed sheave on the motor with the spring side towards the motor approximately 5/16" away from the shoulder on the motor shaft. Install the key and lock the sheave to the motor shaft using the two setscrews provided on the spring cap end.
- c. Raise the drill press table with it swung around to support the motor. Place the motor on the table in an upright position. Raise or lower the table to the point where the motor mounting screws (5/16" x 5/8") line up with the tapped holes in the motor base and fasten the motor on to the base.
- d. Reinstall the variable speed control cam and rotate the cam to maximum r.p.m and back off the square head setscrew in control arm to allow the belt to bottom against the hub on the male half of the variable speed pulley on the countershaft.
- e. Install the belt over the motor pulley. Loosen the setscrews locking the motor base posts to the head casting and adjust the motor base by using the jam nuts on the adjusting stud. Position the belt to be flush with the outside diameter of the motor pulley by squeezing the belt halves toward each other just behind the column. Adjust the base back until there is light tension in the belt. Mark one post with a felt pen or equivalent on its forward side where it sticks through the head casting and readjust the base 1/16 in towards the front of the drill press. Keep in mind that correct center distance of the pulleys is essential to obtaining the full speed range.
- f. Adjust the square head setscrew in the control arm to be in contact with the bearing plate on top of the countershaft variable speed sheave with the sheave halves in contact with the belt.
- g. Start the machine and continue to adjust the setscrew downwards to the point where it just starts to move the belt in on the motor sheave. Lock the setscrew with its jam nut.
- h. If it is apparent that the belt is still bottoming on the countershaft when it is flush with the motor sheave outside diameter, squeeze the belt side together to force it into the motor sheave to relieve belt tension and readjust the base towards the front. If the maximum speed is not reached the same procedure would be followed except the motor base would be moved back.

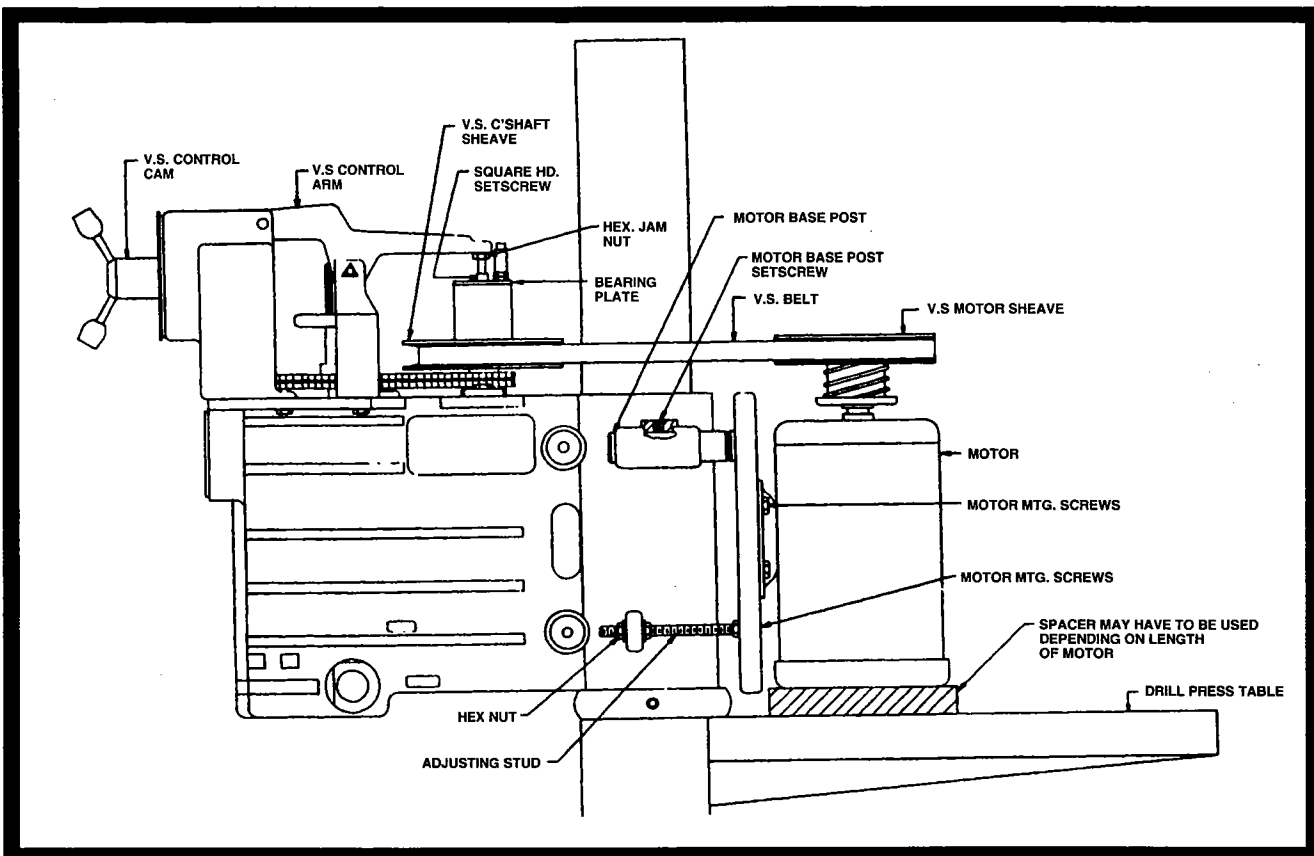


FIGURE 2
MOTOR INSTALLATION - Variable Speed Models

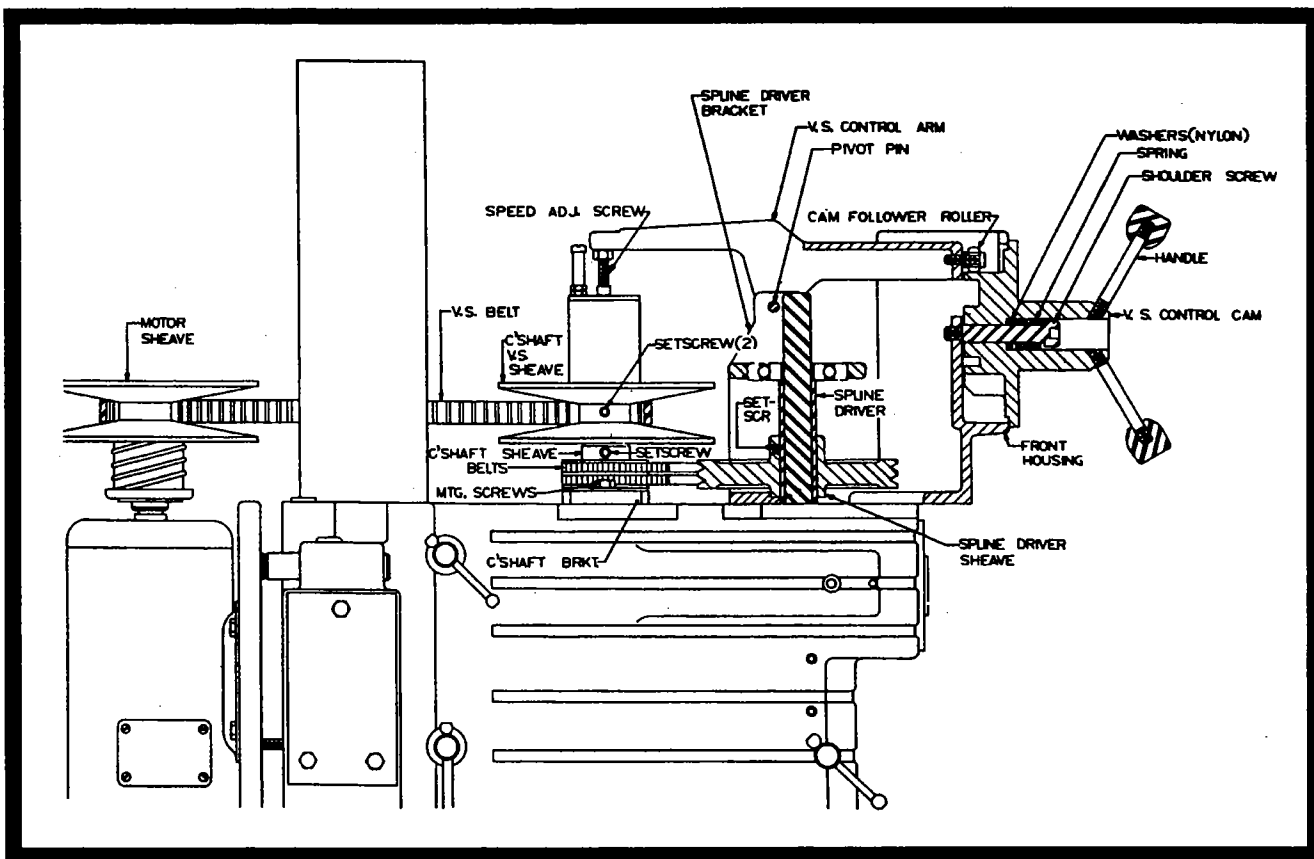


FIGURE 3
VARIABLE SPEED MODELS ADJUSTMENT

CHANGING SPEEDS

Speed changes on step pulley models are to be made with the machine not running - rotate the clamp handle clockwise (Fig. 1). Belt is now free to move to any of the 5 speeds available. When speed choice is made, rotate clamp counterclockwise for proper tension.

Speed changes on variable speed models are to be made **ONLY WHILE MACHINE IS RUNNING**. Damage to variable drive mechanism will result if speed is adjusted while machine is not running.

If spindle speed does not appear to match the dial speed on variable speed unit - check speed with a tachometer and adjust by turning bolt on control arm (See Fig. 3) clockwise and/or readjusting motor position to increase speed and counterclockwise to decrease.

Using another method to set speeds, adjust cam to minimum RPM, adjust by means of screw in control arm to flush belt with outside diameter of spindle sheave. Move motor back until belt has minimum of play. Pull out on one side of the belt. When there is a minimum of slack, the motor and belt system are properly adjusted.

QUILL ADJUSTMENT

Lateral play or bellmouthing can develop between the quill and head casting bands due to wear. To compensate for wear between the quill and head, proceed as follows:

- a. Be sure quill lock handle (Fig. 4) is loose.
- b. Squeeze slotted head casting together slightly by tightening bolt (A). Apply just enough pressure to compensate for wear but do not restrict free motion down or return.

QUILL RETURN SPRING ADJUSTMENT

Spring tension for return of spindle, after hole drilling, has been pre-set at the factory. No further adjustment should be attempted unless absolutely necessary. Adjustment will probably be required if a multiple spindle drilling or tapping head is used. If adjustment is necessary, loosen lock screw (A) (Fig. 5) while holding quill spring housing (B). **DO NOT** allow the housing to turn in your hand or spring will unwind. Turn entire housing assembly clockwise the number of turns necessary to cause the quill to return to its up position. (NOTE: The flat of the spring housing pilot is lined up with the spring loading hole on the body of the spring housing.) Reset lock screw (A), and make sure point of screw mates to flat on the housing journal.

REPLACING SPINDLES ON QUILL ASSEMBLY

To change the quill assembly for any reason, proceed as follows:

1. Hold quill return spring housing (B) in left hand (see Fig. 5) and loosen lock screw (A). Let spring unwind slowly, by allowing cam to turn in hand.
2. Loosen setscrew (C) (Fig. 4) and remove nut (D) on bottom of depth stop rod. Unscrew and remove depth stop.
3. Hold quill assembly and remove the turret pinion shaft (E). Entire quill assembly will slide out of head.

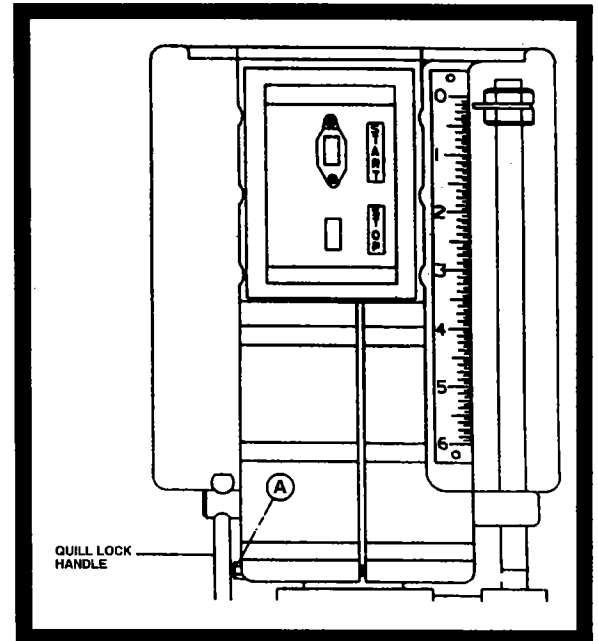


FIGURE 4
QUILL FIT UP ADJUSTMENT

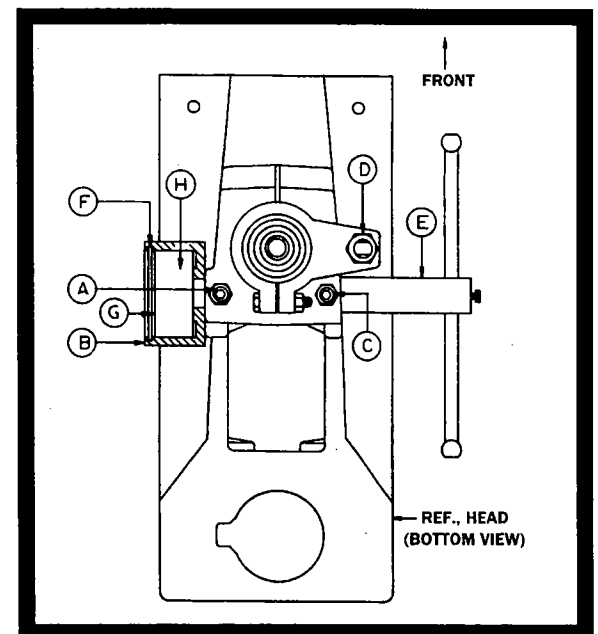


FIGURE 5
QUILL REMOVAL

To change spindles, follow the preceding steps, then (Fig. 6):

1. Loosen setscrew in collar (A). To reach this screw, insert a 5/32" Allen wrench through hole in top of quill.
2. With a hard rubber mallet or block of wood, tap spline end of spindle. The spindle, with bearing (C), will come out of the quill.
3. Use an arbor press to remove bearing (C).
4. To replace spindle, reverse above procedure.
5. When replacing collar (A), remove all end play from spindle.
6. When replacing quill in head casting, rotate spindle, if necessary, to engage spline in pulley driver.
7. Remove lock ring (F) and cover plate (G) (Fig. 5) from spring housing and make certain tongue on return spring is properly inserted in slotted end of pinion shaft. Replace cover and adjust spring tension as instructed under heading "QUILL RETURN SPRING ADJUSTMENT."

LUBRICATION

All ball bearings in your Powermatic drill press are sealed for life, requiring no lubrication. Points requiring lubrication are:

1. Internal spline drive assembly. Keep this area well lubricated with a good grade non-hardening grease, such as Fiske Company "Lubriplate." Insert grease in the hole at the top of spindle pulley spline driver. Lube twice yearly.
 2. A light film of oil applied to the quill and column will reduce wear, prevent rust and assure ease of operation.
 3. Quill return spring should receive oil (SAE 20) once yearly. Remove cover plate and apply oil with squirt can or small brush.
 4. **IMPORTANT:** The hub area of variable speed pulleys should be coated with a DOW Corning GN Paste or equivalent.
 5. Apply Lubriplate to quill pinion every 90 days.
 6. Occasional dressing of belt with spray can type belt dressing or parafin wax will promote longer belt life and quieter operation.
- NOTE:** Use extreme care when performing this operation and keep hands clear of pinch points. When using parafin bar, do this only by turning the sheaves by hand. **DO NOT** apply with motor running.
7. When equipped with mechanical power feed unit, periodically coat the gears with a good open gear lubricant

REPLACING OR ADJUSTING SPINDLE DRIVE BELTS

To replace the spindle drive belts:

1. Remove the variable speed control cam by removing the center shoulder screw, spring and washers.
2. Remove the guard by removing the four 5/16" guard retaining screws and lift guard off the machine.
3. Remove the front housing by removing its two 5/16" hex head mounting screws.
4. Remove the variable speed control arm by removing its pivot pin.
5. Remove the variable speed belt and the countershaft variable speed sheave assembly by loosening the two setscrews in the male hub and sliding the sheave off the shaft.
6. Loosen the countershaft bracket mounting screws and slip the belt off its sheave.
7. Remove the spline driver assembly by removing its two mounting screws and lift it off the machine.
8. Loosen the setscrews in the spline driver sheave, slide it upward on the spline driver and remove the belts.
9. Install new belts and reassemble in reverse order through step 3.

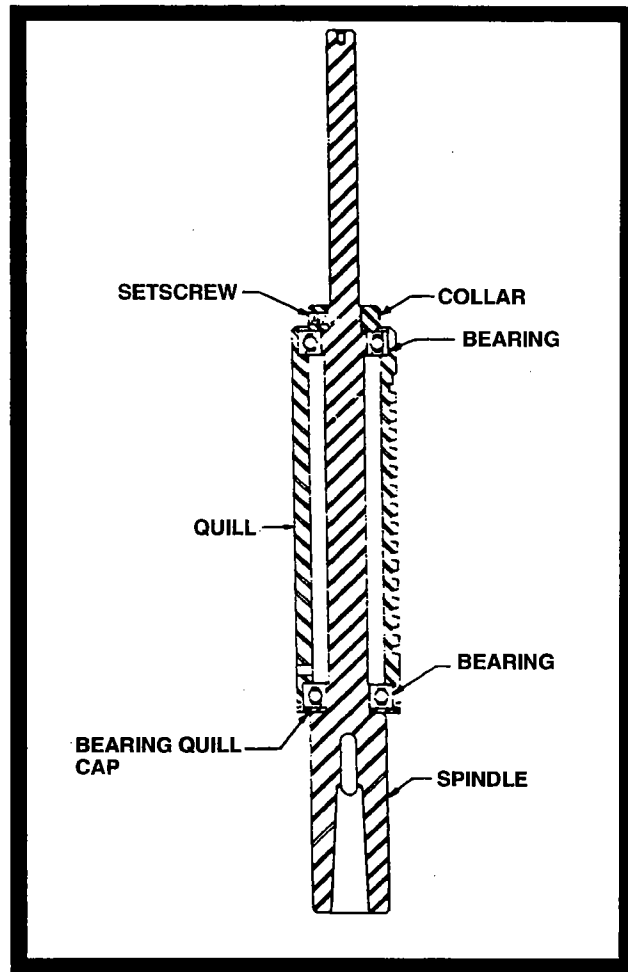


FIGURE 6
SPINDLE ASSEMBLY

10. Tension the belts by using a pry bar between the spline driver bracket and the countershaft bracket. The belts must be string tight to provide proper driving power. Lock the countershaft bracket to the head casting with its mounting screws.
11. Install the front housing and variable speed cam. Position the cam for maximum speed.
12. Adjust the speed range by following the instructions indicated in the section of this manual on motor installation.

MECHANICAL POWER FEED ATTACHMENT (OPTIONAL) INSTALLATION AND ADJUSTMENT

To install a power feed unit to a standard drill press, it is necessary to remove the standard quill pinion and replace it with the one supplied with the attachment. The following steps are required to install the attachment:

1. Hold the quill return spring housing (B) (Fig. 5) in the left hand and loosen lock screw (A). Let spring slowly unwind by allowing the housing to rotate in the hand.
2. Clamp the quill with the quill binder so that it will not fall out of the head. Unlock and remove setscrew (A) and remove the standard pinion. Install the power feed pinion and its locking sleeve. Install the setscrew in the outside tapped hole and lock the sleeve in position.
3. Install a 5/16-18 x 1" setscrew with jam nuts in the two ears on the lower right-hand side of the head immediately behind the pinion hub. Install No. 3610006 pulley on the bottom of the countershaft assembly and lock in place with the setscrew provided.
4. Mount the power feed housing and worm gear on the drill press, piloting the casting on the feed pinion locking sleeve. Adjust the casting to be parallel with the head cast with the setscrews mounted on the head casting ears, and lock in place. Install the sheet metal bracket to the motor base adjusting stud and lock it down against the feed box castings with the screw provided. (Figures 7 & 8).
5. Align the worm gear to the worm by meshing the worm and centralizing the worm wheel. Lock in place with the setscrews provided.
6. Install the belt from the head to the power feed unit and adjust the sheave bracket mounting screws (A) to properly tension the belt.

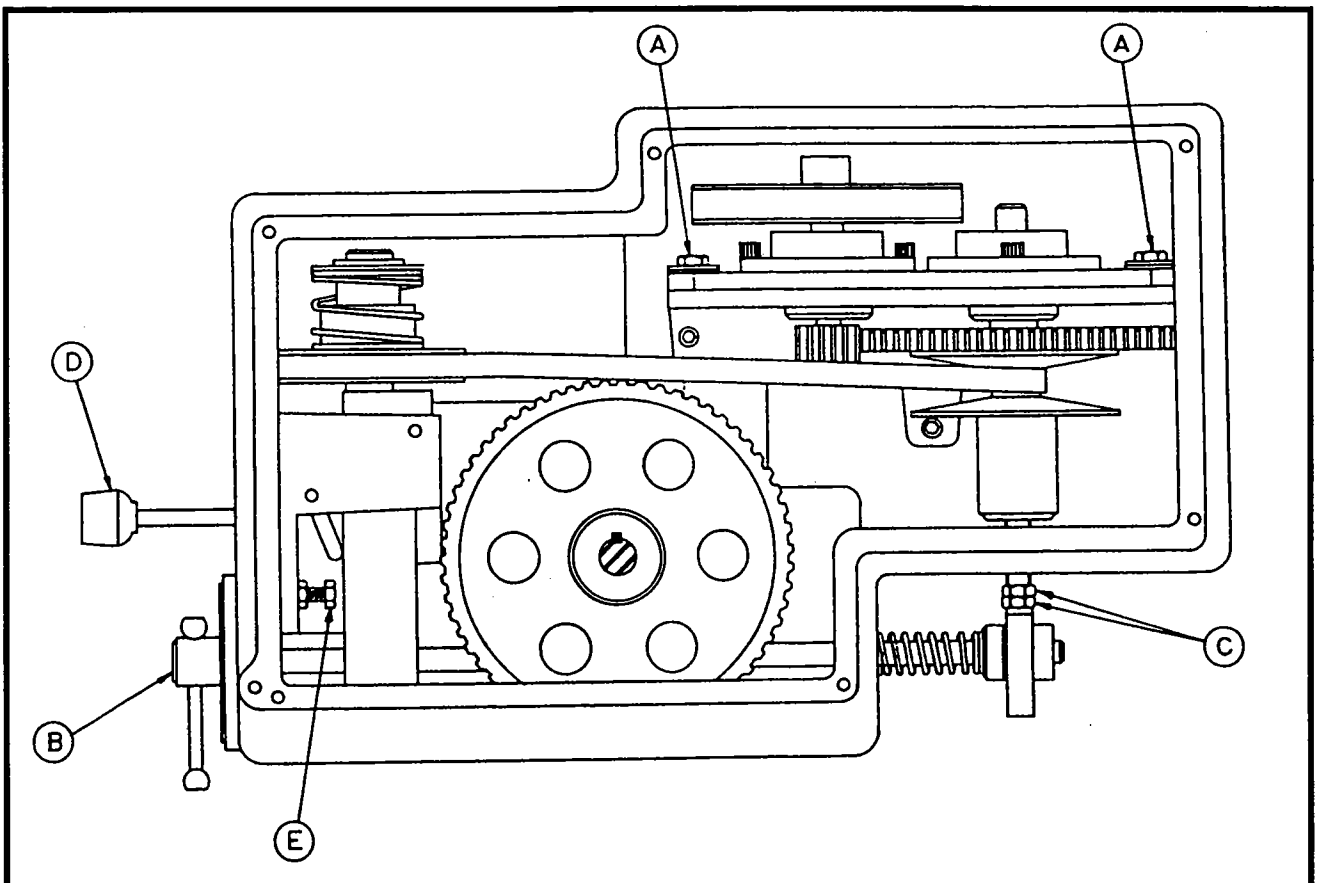


FIGURE 7

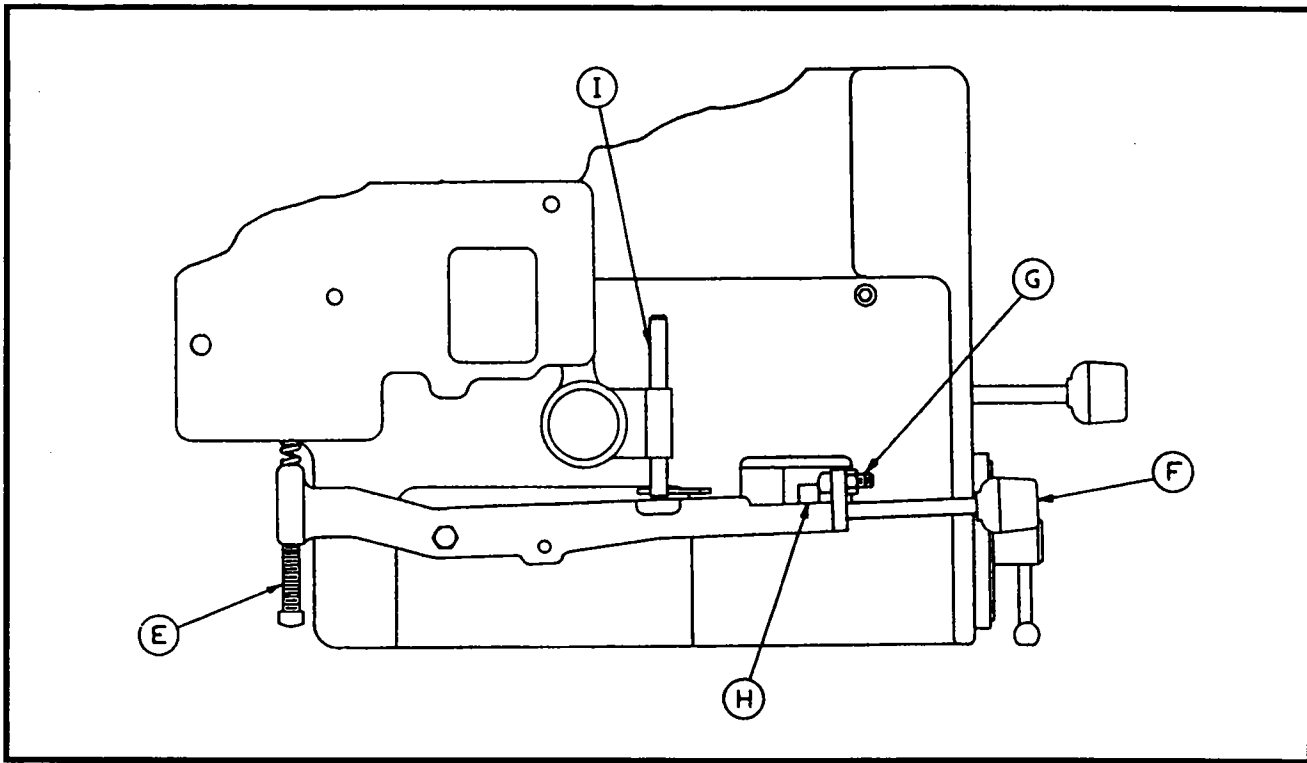


FIGURE 8

7. Coat all gears with a good open gear grease.
8. Unscrew the handles and knobs from the standard pinion hub and install them in the power feed hub. Insert the key into the pinion shaft, install the hub and lock in place with the setscrew provided.
9. Unlock the quill and retension the return spring by rotating the spring housing until the spring provides enough torque to return the quill to its up position. Reset lock screw (A) making sure the point of the screw mates with the flat on the spring housing hub.
10. Start the machine keeping the hands away from the internal power feed parts and check the action of the variable speed sheaves by rotating the variable feed cam (B). At minimum feed rate the belts should be flush with the driven sheave. If it is not, adjust the follower screw (C) at the bottom rear of the power feed unit. Check at maximum feed rate; the belt should be flush with the outside diameter of the driving pulley.
11. Check stop screw (E). It is factory set to provide a stop when the unit is kicked out of mesh. If the action is somewhat sluggish increase spring tension with adjusting screw (G).
12. With power off engage the power feed lever and observe the action of the latching arm and handle (F) and the setting of the adjusting screws (G & H). Adjusting screw (G) should be set so that on engagement it just clears adjusting screw (H) and maintains full mesh of the worm. Powered disengagement occurs when the down stop tab moves rod (I) down to the trip position. Lever (F) can be used to manually trip the feed.
13. Engage the power feed lever (D) and note the action of all parts including the kick off of the power feed. Turn the power off and make any adjustments required. Install a 1/2" drill and test the unit under power, drilling a hole in mild steel at .010 in/rev. and 500 r.p.m.
14. Install the outside cover of the unit.

DRILL PRESS OPERATIONS

Familiarize yourself with all operating controls before attempting use of this machine.

CONTROLS (see Figure 9)

1. The spindle (A) in this machine has a No. 3 Morse Taper.
2. A depth stop rod (B) is provided to control hole depth and to prevent drilling through material into table surfaces.
3. A quill lock (C) is located on the left side of the head and is used to hold quill at any position.
4. The turret handle (D) is used to lower the spindle and quill a total depth of 6"
5. A safety collar (E) are provided to prevent head from falling when locks are released.
6. Starting switch (F) is mounted on the front of drill press head within easy reach of the operator.
7. A speed selection chart (G) is located on the front of the head. This chart is to provide assistance in determining proper drill speed.
8. On variable speed models, handle (I) is used to change speed. CAUTION: Change speed with motor running only on variable speed models.
9. On production table models, binder (J) locks the table to the column and handle (H) is used to raise and lower the table.

CONTROLS (POWERFEED)

On powerfeed models (optional, Figure 10) the feed rate control lever varies in feed in inches/revolution between .004 and .012. Lever (L) engages powerfeed and can be used to manually disengage powerfeed. Trip lever (N) automatically disengages powerfeed

when contacted by the dog on the depth stop. Turret handle (K) can be used to manually feed the drill spindle.

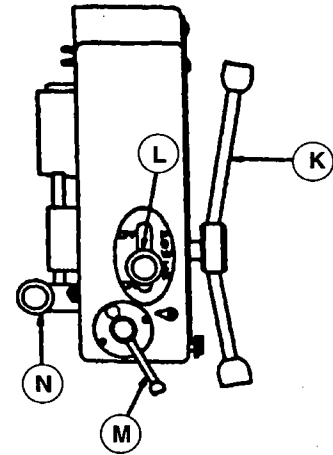


FIGURE 10

OPERATING TIPS

1. Determine drill size, inspect for sharpness, insert and lock securely in chuck or Morse taper.
2. Arrange at this point to protect table surface from drill breakthrough. A piece of scrap material under the workpiece will prevent marring table surface and eliminate splintering at breakthrough point. Lock table securely to prevent movement.
3. Prevent the work from being torn from operator's hand by always securing the workpiece, jig, fixture, or holding device to table by clamping or blocking on the table. DO NOT use the column as a stop. Clamp all light workpieces, jigs, fixtures, or holding devices to the table to prevent them from being picked up as the quill returns.

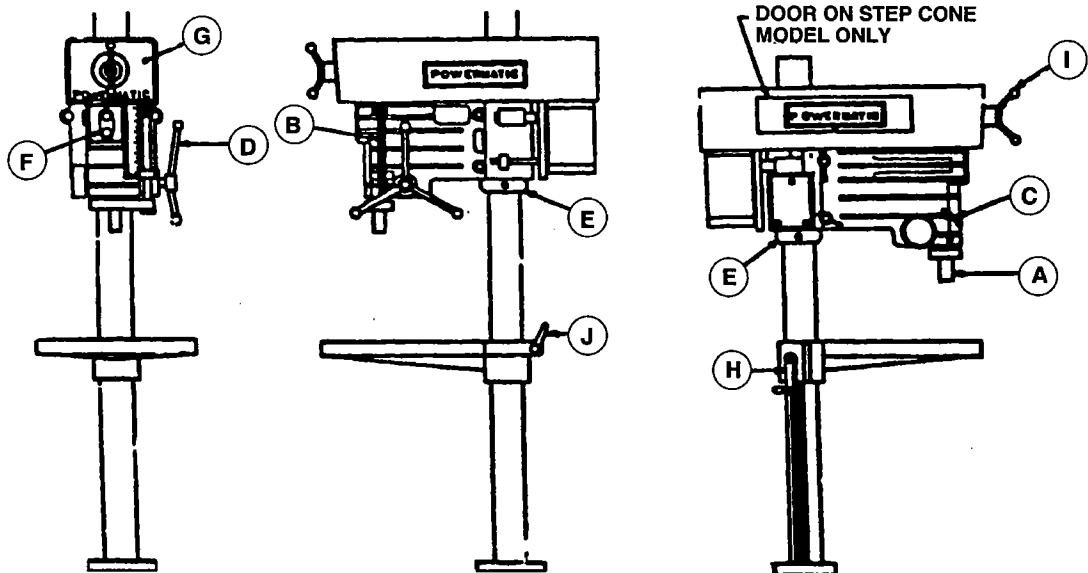


FIGURE 9

4. Select the proper RPM for the tool being used, the material being machined, the operations to be performed, and other conditions as indicated. (See Tables I, II, and III on pages ----- for recommendations.) If drill press is the step pulley type, raise door and set drive belt in proper rasion position. If the machine is a variable speed model, turn machine on and turn control cam to proper speed. NEVER attempt speed adjustment of variable speed machines unless machine is running. Turn machine off.
5. Set depth stop for desired hole depth. Fine adjustment is made by turning the fine adjustment collar directly under pointer on depth rod. Use upper jam nut to lock stop setting position.
6. If coolant is being used, start flow.
7. Turn spindle on and begin drilling operation. As the breakthrough point is reached, always slow feed rate down slightly to assist in elimination of burring underside of workpiece and to help prevent a sudden break through which can cause the drill to grab and pull the workpiece free of its clamping device.
8. Perform all operations with a minimum extension of the quill. Adjust table or head position rather than using excessive quill travel.
9. On tilting table models, be sure to block the part or holding fixture from sliding off the table when it is used tilted at an angle. In addition, be sure the table is clamped.

TROUBLE SHOOTING

PROBLEM	PROBABLE CAUSE	REMEDY
Excessive Vibration	<ol style="list-style-type: none"> 1. Improper belt tension. 2. Uneven belt wear (hard spots). 3. Motor or spindle pulley out of balance. 4. Bad motor. 	<ol style="list-style-type: none"> 1. Adjust belt tension. 2. Replace belt. 3. Balance or replace problem pulley. 4. Replace motor.
Motor Stalls	<ol style="list-style-type: none"> 1. Over feeding. 2. Dull drill. 3. V/S belt riding on inner cone. 4. Motor not building up to running speed. 5. Bad motor. 	<ol style="list-style-type: none"> 1. Reduce feed rate. 2. Sharpen drill and keep sharp 3. Re-adjust V/S belt. 4. Replace or repair motor. Check fuses in all three legs on three phase motor and replace if necessary. 5. Replace motor.
Noisy Operation	<ol style="list-style-type: none"> 1. Excessive vibration. 2. Improper quill adjustment. 3. Noisy spline. 4. Noisy motor. 	<ol style="list-style-type: none"> 1. Check remedy under excessive vibration. 2. Adjust quill (refer to paragraph on quill adjustment). 3. Lubricate spline. 4. Check motor bearings or for loose motor fan.
Drill or Tool Heats up or Burns Work	<ol style="list-style-type: none"> 1. Excessive speed. 2. Chips not clearing. 3. Dull tool. 4. Feed rate too slow. 5. Rotation of drill incorrect. 6. Failure to use cutting oil or coolant (on steel). 	<ol style="list-style-type: none"> 1. Reduce speed. 2. Use pecking operation to clear chips. 3. Sharpen tool or replace. 4. Increase feed enough to clear chips. 5. Reverse motor rotation (refer to motor wiring diagram). 6. Use cutting oil or coolant on steel.
Drill Leads Off	<ol style="list-style-type: none"> 1. No drill spot. 2. Cutting lips on drill off center. 3. Quill loose in head. 4. Bearing play. 	<ol style="list-style-type: none"> 1. Center punch or center drill workpiece. 2. Re grind drill. 3. Tighten quill (refer to quill adjustment). 4. Check bearings and reseal or replace if necessary.
Excessive Drill Runout or Wobble	<ol style="list-style-type: none"> 1. Bent drill. 2. Bearing play. 3. Drill not seated properly in chuck. 	<ol style="list-style-type: none"> 1. Replace drill. Do not attempt to straighten. 2. Replace or reseal bearings. 3. Loosen, reseal and tighten chuck.
Work or Fixture Comes Loose or Spins	<ol style="list-style-type: none"> 1. Failure to clamp workpiece or work holding device to table. 	<ol style="list-style-type: none"> 1. Clamp workpiece or work holding device to table surface.

TABLE IA: DRILLING FEEDS - SPEED - HORSEPOWER REQUIRED

SIZE OF DRILL	FEED PER REVOLUTION	BRONZE BRASS	COPPER	ALUMINUM	MALLE-ABLETION	CAST IRON			STEEL CASTING
						MACHINE SURFACE	SCALE SURFACE	DEEP HOLES	
FT. PER MIN.		250 FT.	150 FT.	300 FT.	80 FT.	100 FT.	80 FT.	80 FT.	40 FT.
INCHES	INCHES	RPM	RPM	RPM	RPM	RPM	RPM	RPM	RPM
1/16	0.003	15279	9167	18320	4889	6111	4889	4889	2445
3/32	0.0035	10186	6111	12212	3262	4077	3262	3262	1628
1/8	0.004	7639	4583	9160	2445	3056	2445	2445	1222
5/32	0.0045	6111	3667	7328	1956	2445	1956	1956	976
3/16	0.005	5093	3056	6106	1630	2037	1630	1630	815
7/32	0.0055	4365	2619	5234	1398	1747	1398	1398	698
1/4	0.006	3820	2292	4575	1222	1528	1222	1222	611
9/32	0.0065	3395	2037	4071	1087	1359	1087	1087	542
5/16	0.007	3056	1833	3660	978	1222	978	978	489
11/32	0.0075	2778	1667	3330	889	1111	889	889	444
3/8	0.008	2546	1528	3050	815	1019	815	815	407
13/32	0.0085	2350	1410	2818	752	940	752	752	376
7/16	0.009	2183	1310	2614	698	873	698	698	349
15/32	0.0095	2037	1222	2442	652	815	652	652	326
1/2	0.01	1910	1146	2287	611	764	611	611	306
17/32	0.0102	1798	1079	2157	575	719	575	575	288
9/16	0.0105	1698	1019	2035	543	679	543	543	271
19/32	0.0107	1608	965	1930	515	643	515	515	257
5/8	0.011	1528	917	1830	489	611	489	489	244
21/32	0.0112	1456	873	1746	466	582	466	466	233
11/16	0.0115	1389	833	1665	444	556	444	444	222
23/32	0.0117	1329	797	1594	425	532	425	425	213
3/4	0.012	1273	764	1525	407	509	407	407	204
25/32	0.0122	1222	733	1467	391	489	391	391	196
13/16	0.0125	1175	705	1409	376	470	376	376	188
7/8	0.013	1091	655	1307	349	436	349	349	175
15/16	0.0135	1019	611	1221	326	407	326	326	163
1	0.014	955	573	1143	306	382	306	306	153

TABLE IB: DRILLING FEEDS - SPEED - HORSEPOWER REQUIRED

SIZE OF DRILL	FEED PER REVOLUTION	STEEL					CAST IRON		STEEL	
		VERY HARD BRINELL 402-444	HARD BRINELL 302-387	MEDIUM BRINELL 202-293	SOFT BRINELL 101-196	DEAD SOFT BRINELL UNDER 100	CUTTING HP	FEED HP	CUTTING HP	FEED HP
FT. PER MIN.		40 FT.	50 FT.	60 FT.	70 FT.	80 FT.				
INCHES	INCHES	RPM	RPM	RPM	RPM	RPM	HP	HP	HP	HP
1/16	0.003	2445	3056	3667	4278	4889	0.07	0.0043	0.18	0.0076
3/32	0.0035	1628	2039	2446	2852	3262	0.11	0.0044	0.27	0.0079
1/8	0.004	1222	1528	1833	2139	2445	0.14	0.0045	0.36	0.0081
5/32	0.0045	976	1223	1467	1711	1956	0.18	0.0046	0.45	0.0084
3/16	0.005	815	1019	1222	1426	1630	0.22	0.0047	0.54	0.0087
7/32	0.0055	698	874	1048	1222	1398	0.25	0.0049	0.63	0.0089
1/4	0.006	611	764	917	1070	1222	0.29	0.005	0.72	0.0092
9/32	0.0065	542	680	815	950	1087	0.33	0.0051	0.81	0.0095
5/16	0.007	489	611	733	856	978	0.37	0.0053	0.89	0.0097
11/32	0.0075	444	555	667	778	889	0.4	0.0054	0.98	0.01
3/8	0.008	407	509	611	713	815	0.44	0.0055	1.07	0.0102
13/32	0.0085	376	470	564	658	752	0.47	0.0056	1.16	0.0104
7/16	0.009	349	437	524	611	698	0.5	0.0057	1.25	0.0106
15/32	0.0095	326	408	489	570	652	0.54	0.0058	1.34	0.0107
1/2	0.01	306	382	458	535	611	0.57	0.0059	1.43	0.0109
17/32	0.0102	288	360	431	503	575	0.6	0.006	1.51	0.0111
9/16	0.0105	271	340	407	475	543	0.64	0.0061	1.6	0.0112
19/32	0.0107	257	322	382	450	515	0.68	0.0062	1.69	0.0114
5/8	0.011	244	306	367	428	489	0.72	0.00624	1.78	0.0115
21/32	0.0112	233	291	349	407	466	0.75	0.0063	1.87	0.0117
11/16	0.0115	222	278	333	389	444	0.79	0.0064	1.96	0.0118
23/32	0.0117	213	266	319	372	425	0.83	0.0065	2.05	0.012
3/4	0.012	204	255	306	357	407	0.87	0.0066	2.14	0.0121
25/32	0.0122	196	245	293	342	391	0.9	0.00665	2.22	0.0122
13/16	0.0125	188	235	282	329	376	0.94	0.0067	2.31	0.0123
7/8	0.013	175	218	262	306	349	1.01	0.0068	2.49	0.0126
15/16	0.0135	163	204	244	285	326	1.09	0.0069	2.67	0.0128
1	0.014	153	191	229	267	306	1.16	0.007	2.85	0.013

**TABLE II: REAMING SPEEDS - HIGH SPEED STEEL TOOLS
MATERIALS - RPM**

	BRASS	BRONZE	MALLE- ABLE IRON	CAST IRON CLASS 30	STEEL CASTING	STEEL				
						VERY HARD BRINELL 400-425	HARD BRINELL 300-375	MEDIUM BRINELL 225-300	SOFT BRINELL 100-200	DEAD SOFT BRINELL UNDER 100
1/8	0.004	1222	1528	1833	2139	2445	0.14	0.0045	0.36	0.0081
1/4	0.006	611	764	917	1070	1222	0.29	0.005	0.72	0.0092
3/8	0.008	407	509	611	713	815	0.44	0.0055	1.07	0.0102
1/2	0.01	306	382	458	535	611	0.57	0.0059	1.43	0.0109
5/8	0.011	244	306	367	428	489	0.72	0.00624	1.78	0.0115
3/4	0.012	204	255	306	357	407	0.87	0.0066	2.14	0.0121
7/8	0.013	175	218	262	306	349	1.01	0.0068	2.49	0.0126
1	0.014	153	191	229	267	306	1.16	0.007	2.85	0.013
NOTE: For Carbide Reamers Use 3 Times Charts Speeds										
Counterboring & Spotfacing - High Speed Steel Tools - Surface Ft./Min.										
	325	100	50	50	40	30	45	55	65	110
NOTE: For Carbide Spotfacers Use 4 Times Chart Values										

TABLE III: TAPPING AND THREADING FORMULA FOR CALCULATING HORSEPOWER REQUIREMENTS

PPV = Power Pitch Value
 SFM = Surface Feet Per Minute
 M = Material Factor
 TD = Tool Dullness Factor
 HP = Horsepower
 RPM = Revolutions Per Minute

$$HP = PPV \times SFM \times M \times TD$$

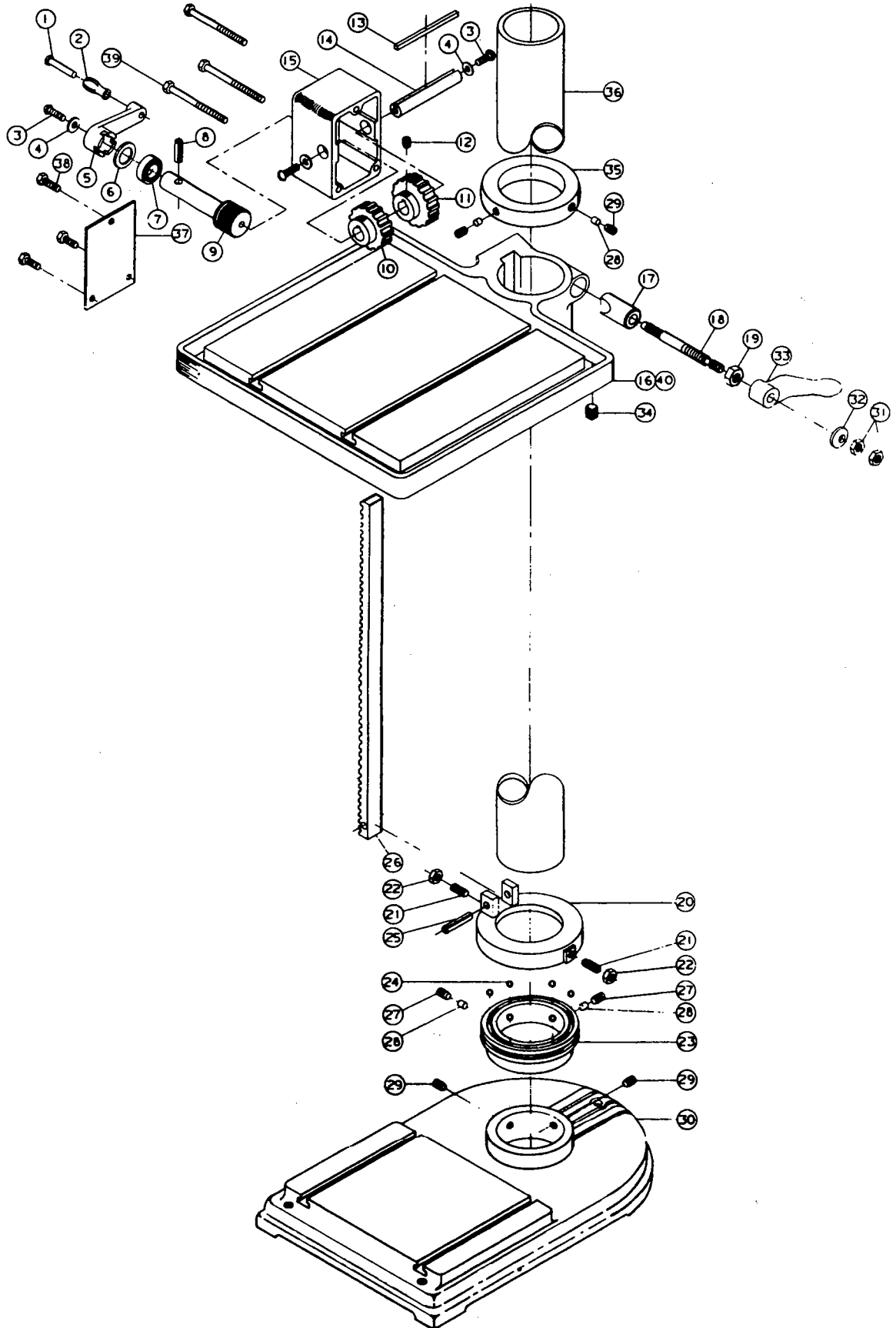
TAPPING AND THREADING FACTORS CHART	
Threads per inch	Power Pitch Value* PPV
32	0.002
27	0.0034
24	0.004
20	0.006
18	0.007
16	0.009
14	0.011
13	0.012
12	0.014
11-1/2	0.015
11	0.016
10	0.02
9	0.025
8	0.03
7	0.035
6	0.04
Multiply PPV by 2.2 for Double or Taper Pipe Threads	
TD - Use (1.5 Factor) for Tool Dullness	

MATERIAL AND SPEED FACTORS CHART		
MATERIAL	FACTOR - M	SPEED - S.F.M.
Aluminum	0.5	100
Bakelite	0.6	75
Brass	0.6	90
Bronze	0.6	50
Bronze Mang.	1	40
Copper	0.5	80
Alum. Die Cast	0.6	80
Fiber	0.5	75
Zinc Die Cast	0.6	80
Cast Iron	0.6	70
Malleable Iron	0.6	45
Magnesium	0.5	100
Steel Cast	1.4	35
Steel Fr. Mach.	1	50
Steel Chromium	1.7	30
Steel Alloy	1.7	25
Steel Stainless	1.7	20
REVOLUTIONS PER MINUTE CALCULATION		
R.P.M. = 3.82 X S.F.M. + Dia.		

PARTS LIST: Production & Tilting Table w/ Table Raising Rack

NO.	PART NO.	DESCRIPTION	NO.	PART NO.	DESCRIPTION
	2298013	ASSEMBLY, ELEVATING GEAR BOX HOUSING (Items 1 thru 15)	22	6515001	NUT, HEX. 5/16-18
1	6624006	PIN, GROOVE, 1/4 X 3	23	3046003	BEARING, THRUST COLLAR
2	3268201	HANDLE, NYLON	24	6054002	BEARING, STEEL BALL 3/8
3	6715132	SCREW, RD. HD., 5/16-18 X 1/2	25	6626033	PIN, SPRING, 3/16 X 2
4	6861201	WASHER, FLAT, 5/16	26	3650005	RACK, GEAR, 24"
5	3268005	HANDLE, ELEVATING D-21	27	6718056	SCREW, CUP PT. SOC. SET, 1/2-13 X 3/4
6	3741211	SPACER, FLAT SHAFT, 1/2"	28	3598023	PLUG, PROTECTOR, 7/16 X 3/16
7	6064001	BEARING, THRUST NICE 605	29	6718055	SCREW, CUP PT. SOC. SET, 1/2-13 X 1/2
8	6626040	PIN, SPRING, 1/4 X 1-1/4	30	3042037	BASE, DRILL PRESS
9	3237013	GEAR, PINION	31	6517006	NUT, HEX JAM, 7/16-14
10	3237002	GEAR, WORM	32	3838008	WASHER, TABLE LOCKING BEVEL
11	3237001	GEAR, SPUR	33	3268008	HANDLE, TABLE LOCKING
12	6714004	SCREW, SOC. SET, 1/4-20 X 1/4	34	6638004	PLUG, PIPE, 1/2-14
13	3388015	KEY, SQUARE, 3/16 X 3/16 X 2-1/4	35	3096039	COLLAR, COLUMN
14	3701004	SHAFT, GEAR	36	3098004	COLUMN, FLOOR MODEL
15	3298017	HOUSING, GEAR BOX	37	3104014	COVER, HEAD & TABLE
	2797026	ASSEMBLY, PRODUCTION TABLE (Items 16 thru 19)	38	6717038	SCREW, HEX. HD. CAP, 3/8-16 X 1/2
16	3797030	TABLE, PRODUCTION	39	6716042	SCREW, HEX. HD. CAP, 3/8-16 X 3
17	3728010	SLEEVE, TABLE LOCKING			NOTE: Items 1 thru 39 are part of B/M & Assy. No. 2042028
18	3773012	STUD, TABLE LOCKING	40	2797028	ASSEMBLY, TILTING TABLE (not shown)
19	3528001	NUT, TABLE STUD LOCK			
	2645002	ASSEMBLY, TABLE RAISING RACK (Items 20 thru 26)			
20	3096040	COLLAR, BEARING ELEVATING RACK			
21	6715118	SCREW, SOC. SET HALF DOG PT., 5/16-18 X 3/4			

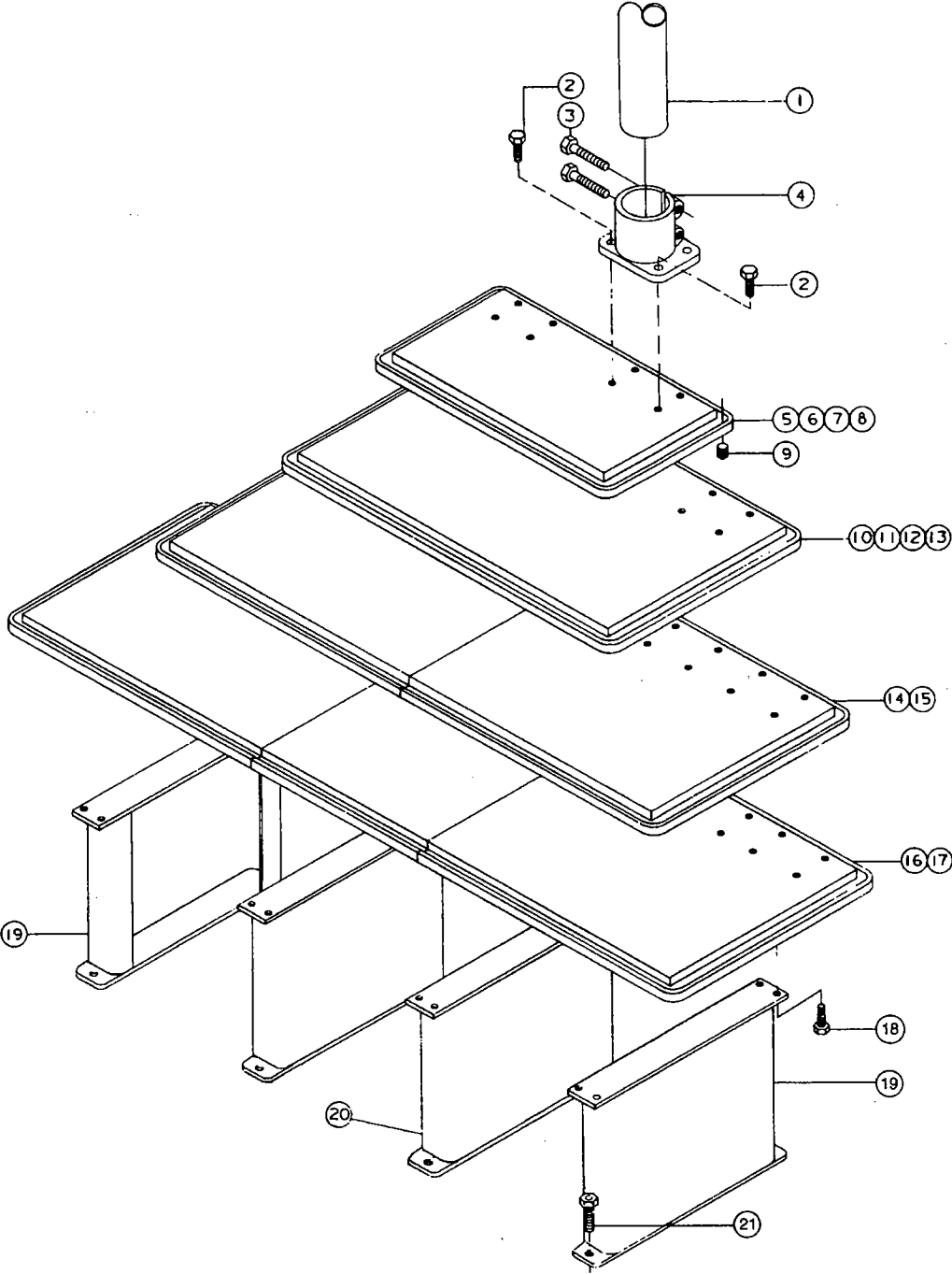
EXPLODED VIEW: Production & Tilting Table w/ Table Raising Rack



PARTS LIST: Multi Spindle Table, Legs & Column Mtg. Bracket Assy.

NO.	PART NO.	DESCRIPTION	NO.	PART NO.	DESCRIPTION
1	3098005	COLUMN, BENCH MODEL	12	3797036	4 SPINDLE TABLE w/o T-SLOTS
		1 SPINDLE TABLE	13	3797065	4 SPINDLE TABLE w/ T-SLOTS
		2 SPINDLE TABLE	14	2797018	6 SPINDLE TABLE ASS'Y w/o
		3 SPINDLE TABLE			T-SLOTS
		4 SPINDLE TABLE	15	2797127	6 SPINDLE TABLE ASS'Y w/
		6 SPINDLE TABLE			T-SLOTS
		8 SPINDLE TABLE	16	2797019	8 SPINDLE TABLE ASS'Y w/o
2	6718009	SCREW, HEX. HD. CAP, 1/2-13			T-SLOTS
		X 1-1/4	17	2797128	8 SPINDLE TABLE ASS'Y w/
		1 SPINDLE TABLE			T-SLOTS
		2 SPINDLE TABLE	18	6718015	SCREW, HEX. HD. CAP, 1/2-13 X 1
		3 SPINDLE TABLE			1 SPINDLE TABLE
		4 SPINDLE TABLE			2 SPINDLE TABLE
		6 SPINDLE TABLE			3 SPINDLE TABLE
		8 SPINDLE TABLE			4 SPINDLE TABLE
3	6718025	SCREW, HEX. HD. CAP, 1/2-13			6 SPINDLE TABLE
		X 2-1/2			8 SPINDLE TABLE
		1 SPINDLE TABLE	19	2423003	ASSEMBLY, TABLE END LEG
		2 SPINDLE TABLE			(WELDMENT)
		3 SPINDLE TABLE			1 SPINDLE TABLE
		4 SPINDLE TABLE			2 SPINDLE TABLE
		6 SPINDLE TABLE			3 SPINDLE TABLE
		8 SPINDLE TABLE			4 SPINDLE TABLE
4	3064078	BRACKET, COLUMN MOUNTING			6 SPINDLE TABLE
		1 SPINDLE TABLE			8 SPINDLE TABLE
		2 SPINDLE TABLE	20	2423004	ASSEMBLY, TABLE MIDDLE LEG
		3 SPINDLE TABLE			(WELDMENT)
		4 SPINDLE TABLE			6 SPINDLE TABLE
		6 SPINDLE TABLE			8 SPINDLE TABLE
		8 SPINDLE TABLE	21	3694006	BOLT, TABLE LEVELING HEX HD.
5	3797014	1 SPINDLE TABLE w/o T-SLOTS			1 SPINDLE TABLE
6	3797015	1 SPINDLE TABLE w/ T-SLOTS			2 SPINDLE TABLE
7	3797035	2 SPINDLE TABLE w/o T-SLOTS			3 SPINDLE TABLE
8	3797064	2 SPINDLE TABLE w/ T-SLOTS			4 SPINDLE TABLE
9	6638004	PLUG, PIPE, 1/2-14 NPT			6 SPINDLE TABLE
10	3797040	3 SPINDLE TABLE w/o T-SLOTS			8 SPINDLE TABLE
11	3797069	3 SPINDLE TABLE w/ T-SLOTS			

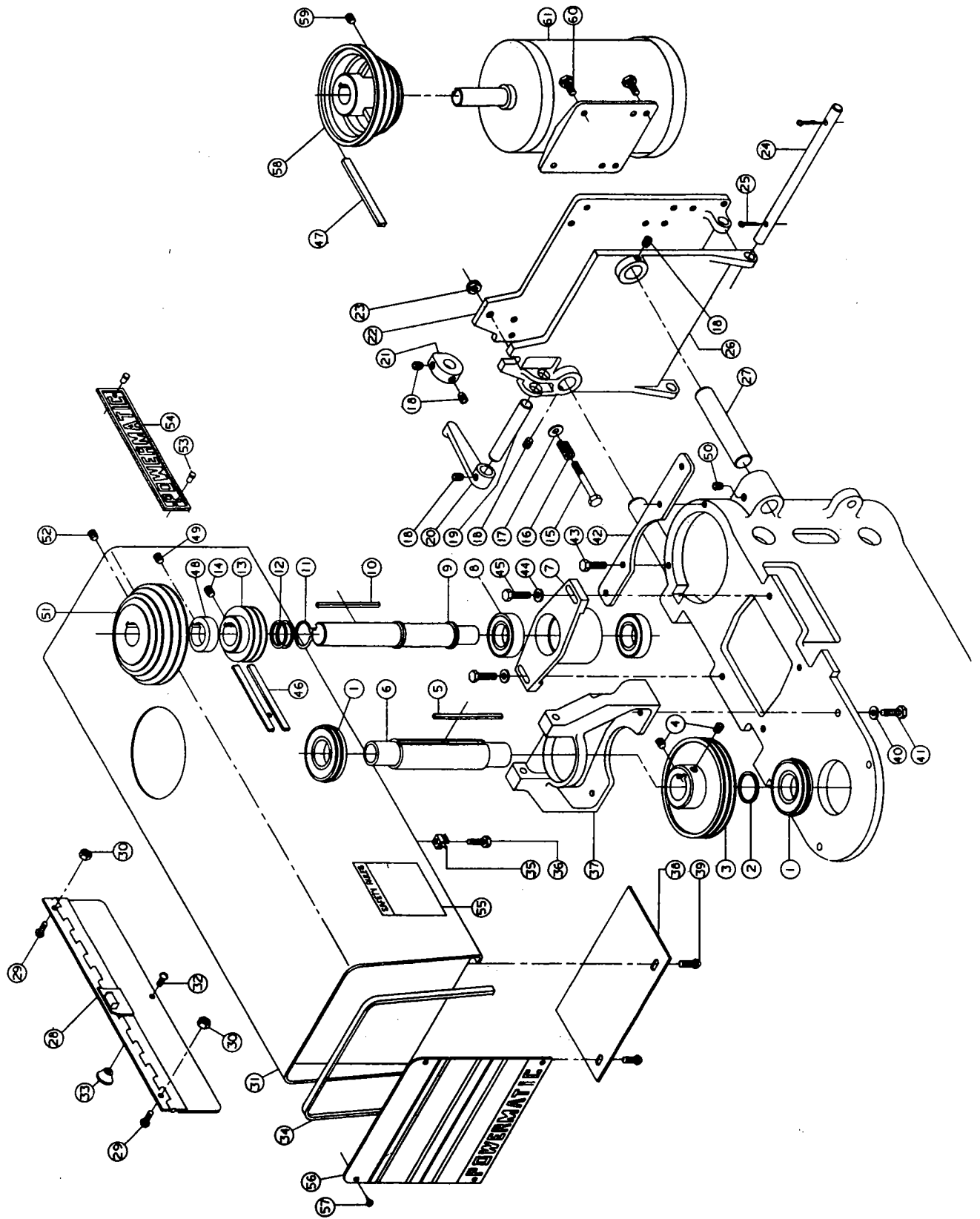
EXPLODED VIEW: Multi Spindle Table, Legs & Column Mtg. Bracket Assy.



PARTS LIST: Stepcone Assembly

NO.	PART NO.	DESCRIPTION	NO.	PART NO.	DESCRIPTION
	2387002	ASSY., STEP CONE SHEAVE KIT (Items 1 thru 52)	45	6717017	SCREW, HEX. HD. CAP, 7/16-14 X 1
	2144001	ASSY., DRIVE SPLINE SHEAVE (Items 1 thru 6)	46	6077076	BELT, 7M-710
1	6060054	BEARING, BALL, MRC 107KSZZG	47	6077040	BELT, V-MOTOR, SL-450
2	6664007	RING, "O" (SHOCK ABSORBER)	48	3743005	SPACER, COUNTERSHAFT
3	3717041	SHEAVE, 2 GROOVE	49	6714004	SCREW, SOC. SET, 1/4-20 X 1/4
4	6715013	SCREW, SOC. SET, 5/16-18 X 3/8	50	6716009	SCREW, CUP PT. SOC. SET, 3/8-16 X 1/2 (one not shown)
5	3388039	KEY, SQUARE, 3/16 X 3/16 X 2-1/2	51	3718005	SHEAVE, STEP CONE
6	3144002	SHAFT, SPLINE DRIVE	52	6715016	SCREW, CUP PT. SOC. SET, 5/16-18 X 5/16
	2298005	ASSY., COUNTERSHAFT HOUSING, (Items 7 thru 14)	53	6680020	RIVET, FLAT HD. DRIVE, 5/32 X 1/4 (two not shown)
7	3298032	HOUSING, V/S SHAFT	54	3312251	PLATE, POWERMATIC I.D. (one not shown)
8	6060010	BEARING, BALL, FAFNIR 205PP	55	3330284	PLATE, SAFETY RULES
9	3706005	SHAFT, V/S DRIVE	56	3330277	PLATE, SERIAL No. I.D. (STEP CONE)
10	3388019	KEY, SQUARE, 3/16 X 3/16 X 3-11/16	57	6746020	SCREW, SELF-TAPPING PAN HD., No. 4 X 1/4
11	6670005	RING, RETAINING, TRUARC No. 5100-100	58	3718005	SHEAVE, STEP CONE
12	6811326	SPACER, STL. ARBOR, 1 X 1-1/2 X .062	59	6715016	SCREW, CUP PT. SOC. SET, 5/16-18 X 5/16
13	3717053	SHEAVE, 2 GROOVE	60	6715180	SCREW, HEX WASHER HD. CAP, 5/16-18 X 5/8
14	6714004	SCREW, SOC. SET, 1/4-20 X 1/4	61	6471207	MOTOR, ELEC., 1-1/2 HP, 3 PH, 1200 RPM, 230/460V, 182T, TEFC
	2042021	ASS'Y, STEP CONE TILTING MOTOR BASE (Items 15 thru 27)		6471206	MOTOR, ELEC., 1-1/2 HP, 3 PH, 1200 RPM, 200V, 182T, TEFC
15	6716114	SCREW, HEX. HD. CAP, 3/8-16 X 2-3/4		6471027	MOTOR, ELEC., 1 HP, 3 PH, 1800 RPM, 230/460V, 143T, TEFC
16	6813068	SPRING, 9/16 X 2		6471026	MOTOR, ELEC., 1 HP, 3 PH, 1800 RPM, 200V, 143T, TEFC
17	6861301	WASHER, FLAT, 3/8		6471322	MOTOR, ELEC., 1-1/2 HP, 3 PH, 1800 RPM, 200V, 145T, TEFC
18	6715016	SCREW, CUP PT. SOC. SET, 5/16-18 X 5/16		6471317	MOTOR, ELEC., 1-1/2 HP, 3 PH, 1800 RPM, 575V, 145T, TEFC
19	3670031	ROD, MOTOR BASE HANDLE		6471304	MOTOR, ELEC., 1-1/2 HP, 3 PH, 1800 RPM, 230/460V, 145T, TEFC
20	3268007	HANDLE, TILTING		6471301	MOTOR, ELEC., 1-1/2 HP, 1 PH, 1800 RPM, 115/230V, 145T, TEFC
21	3076011	CAM, MOTOR BASE HANDLE		6470920	MOTOR, ELEC., 1 HP, 3 PH, 1200 RPM, 200V, 145T, TEFC
22	3042057	BASE, STEP CONE MOTOR		6470912	MOTOR, ELEC., 1 HP, 1 PH, 1200 RPM, 115/230V, 145T, TEFC
23	6516002	NUT, HEX LOCK, 3/8-16		6470901	MOTOR, ELEC., 1 HP, 3 PH, 1200 RPM, 230/460V, 145T, TEFC
24	3711004	SHAFT, TILTING MOTOR BASE		6471617	MOTOR, ELEC., 2 HP, 3 PH, 1800 RPM, 200V, 145T, TEFC
25	6622002	PIN, COTTER, 1/8 X 1		6471616	MOTOR, ELEC., 2 HP, 3 PH, 1800 RPM, 575V, 145T, TEFC
26	3042056	BASE, MOTOR MOUNTING		6471603	MOTOR, ELEC., 2 HP, 3 PH, 1800 RPM, 230/460V, 145T, TEFC
27	3670032	ROD, TILTING MOTOR BASE		6473012	MOTOR, ELEC., 2/1 HP, 3 PH, 900 & 1800 RPM, 230/460V, 184T, ODP
	2250061	ASS'Y, STEP CONE BELT GUARD (Items 28 thru 31)		6472903	MOTOR, ELEC., 1-1/2/3/4 HP, 3 PH, 900 & 1800 RPM, 230/460V, 184T, ODP
28	2136034	ASS'Y, STEP CONE DOOR GUARD (WELDMENT)		6471202	MOTOR, ELEC., HI-REV, 1-1/2 HP, 3 PH, 1200 RPM, 230/460V, 184T, ODP
29	6710033	SCREW, RD. HD., NO. 10-24 X 3/8 (two not shown)		6471501	MOTOR, ELEC., HI-REV, 2 HP, 3 PH, 1200 RPM, 230/460V, 182T, ODP
30	6510001	NUT, HEX., No. 10-24 (two not shown)			
31	2250089	ASS'Y, GUARD (WELDMENT)			
32	6760046	SCREW, RD. HD., No. 10-32 X 3/8			
33	6430017	KNOB, DAVIES No. 3702SD			
34	6458001	MOLDING, RUBBER			
35	6514014	NUT, SELF RETAINING			
36	6714127	SCREW, HEX. HD. CAP, 1/4-20 X 1/2			
37	3063246	BRACKET, UPPER SPINDLE BEARING			
38	3595271	PLATE, SAFETY			
39	6714066	SCREW, RD. HD., 1/4-20 X 1/4			
40	6861200	WASHER, LOCK, 5/16			
41	6715032	SCREW, HEX. HD., 5/16-18 X 1			
42	3767211	STRAP, GUARD MOUNTING (one not shown)			
43	6715033	SCREW, HEX. HD. CAP, 5/16-18 X 1/2 (two not shown)			
44	6861401	WASHER, FLAT, 7/16			

EXPLODED VIEW: Stepcone Assembly



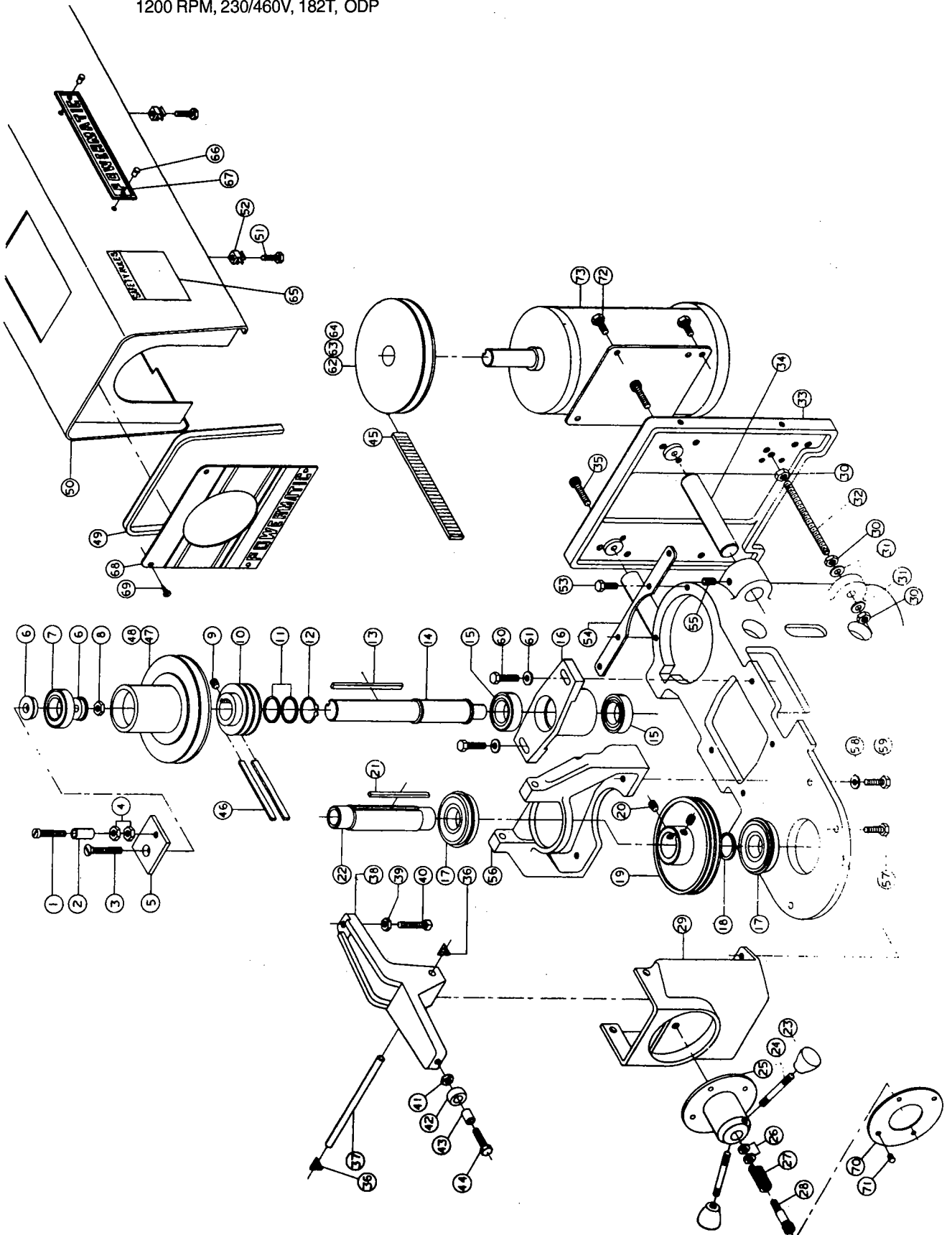
PARTS LIST: Variable Speed Assembly

NO.	PART NO.	DESCRIPTION	NO.	PART NO.	DESCRIPTION
	2404004	ASS'Y, V/S KIT (Items 1 thru 61)	49	6458001	MOLDING, RUBBER
	2595018	ASS'Y, V/S BEARING PLATE (Items 1 thru 8)	50	2250060	ASS'Y, V/S GUARD (WELDMENT)
1	6714042	SCREW, FILLISTER HD., 1/4-20 X 2	51	6714127	SCREW, HEX. HD. CAP, 1/4-20 X 1/2
2	3070201	BUSHING, RUBBER, 1/4 I.D.	52	6514014	NUT, SELF RETAINING
3	6714190	SCREW, FLAT HD. MACH., 1/4-20 X 1-1/8	53	6715033	SCREW, HEX. HD CAP 5/16-18 X 1/2
4	6514008	NUT, HEX. JAM, 1/4-20	54	3767211	STRAP, MOUNTING GUARD (one not shown)
5	3595005	PLATE, V/S BEARING	55	6716009	SCREW, CUP PT. SOC. SET, 3/8-16 X 1/2
6	3598204	PLUG, V/S BEARING	56	3063246	BRACKET, UPPER SPINDLE BEARING
7	6060009	BEARING, BALL, MRC 204SZZ	57	6716034	SCREW, HEX. HD. CAP, 3/8-16 X 7/8
8	6514012	NUT, FLEXLOC, 1/4-20	58	6861200	WASHER, LOCK, 5/16
	2298005	ASS'Y, COUNTERSHAFT HOUSING (Items 9 thru 16)	59	6715032	SCREW, HEX. HD., 5/16-18 X 1
9	6714004	SCREW, SOC. SET, 1/4-20 X 1/4	60	6717017	SCREW, HEX. HD. CAP, 7/16-14 X 1
10	3717053	SHEAVE, 2 GROOVE	61	6861401	WASHER, FLAT, 7/16
11	6811326	SPACER, STL. ARBOR, 1 X 1-1/2 X .062	62	2719009	ASS'Y, V/S MOTOR SHEAVE
12	6670005	RING, RETAINING, TRUARC No. 5100-100	63	2719011	ASS'Y, V/S MOTOR SHEAVE (ALT. FOR 2719009)
13	3388019	KEY, SQUARE, 3/16 X 3/16 X 3-11/16	64	2719034	ASS'Y, V/S MOTOR HI-REV SHEAVE (ALT. for 2719009)
14	3706005	SHAFT, V/S DRIVE	65	3330284	PLATE, SAFETY RULES
15	6060010	BEARING, BALL	66	6680020	RIVET, FLAT HD. DRIVE, 5/32 X 1/4 (two not shown)
16	3298032	HOUSING, V/S SHAFT	67	3312251	PLATE, POWERMATIC I.D. (one not shown)
	2144001	ASS'Y, DRIVE SPLINE SHEAVE (Items 17 thru 22)	68	3330278	PLATE, SERIAL No. I.D. (V/S)
17	6060054	BEARING, BALL	69	6746020	SCREW, SELF-TAPPING PAN HD. No. 4 X 1/4
18	6664007	RING, "O" (SHOCK ABSORBER)	70	3684247	SCALE, SPEED DIAL
19	3717041	SHEAVE, 2 GROOVE	71	6747000	SCREW, DRIVE, No. 4 X 3/16
20	6715013	SCREW, SOC. SET, 5/16-18 X 3/8	72	6715180	SCREW, HEX. WASHER HD. CAP, 5/16-18 X 5/8
21	3388039	KEY, SQUARE, 3/16 X 3/16 X 2-1/2	73	6471207	MOTOR, ELEC., 1-1/2 HP, 3 PH, 1200 RPM, 230/460V, 182T, TEFC
22	3144002	DRIVE, SPLINE		6471206	MOTOR, ELEC., 1-1/2 HP, 3 PH, 1200 RPM, 200V, 182T, TEFC
	2298026	ASS'Y, V/S HOUSING (Items 23 thru 29)		6471027	MOTOR, ELEC., 1 HP, 3 PH, 1800 RPM, 230/460V, 143T, TEFC
	2268005	ASS'Y, HANDLE (Items 23 & 24)		6471026	MOTOR, ELEC., 1 HP, 3 PH, 1800 RPM, 200V, 143T, TEFC
23	3406201	KNOB, TEARDROP		6471322	MOTOR, ELEC., 1-1/2 HP, 3 PH, 1800 RPM, 200V, 145T, TEFC
24	3670039	ROD, HANDLE		6471317	MOTOR, ELEC., 1-1/2 HP, 3 PH, 1800 RPM, 575V, 145T, TEFC
25	3076033	CAM, V/S		6471304	MOTOR, ELEC., 1-1/2 HP, 3 PH, 1800 RPM, 230/460V, 145T, TEFC
26	6861702	WASHER, NYLATRON CAM		6471301	MOTOR, ELEC., 1-1/2 HP, 1 PH, 1800 RPM, 115/230V, 145T, TEFC
27	6813006	SPRING, COMPRESSION		6470920	MOTOR, ELEC., 1 HP, 3 PH, 1200 RPM, 200V, 145T, TEFC
28	6718029	SCREW, CAM MTG. SHOULDER		6470912	MOTOR, ELEC., 1 HP, 1 PH, 1200 RPM, 115/230V, 145T, TEFC
29	3298215	HOUSING, CAM		6470901	MOTOR, ELEC., 1 HP, 3 PH, 1200 RPM, 230/460V, 145T, TEFC
	2042022	ASS'Y, V/S MOTOR BASE (Items 30 thru 35)		6471617	MOTOR, ELEC., 2 HP, 3 PH, 1800 RPM, 200V, 145T, TEFC
30	6516001	NUT, HEX., 3/8-16		6471616	MOTOR, ELEC., 2 HP, 3 PH, 1800 RPM, 575V, 145T, TEFC
31	6861301	WASHER, FLAT, 3/8		6471603	MOTOR, ELEC., 2 HP, 3 PH, 1800 RPM, 230/460V, 145T, TEFC
32	3773009	STUD, MOTOR BASE ADJUST 5"		6473012	MOTOR, ELEC., 2/1 HP, 3 PH, 900 & 1800 RPM, 230/460V, 184T, ODP
33	3042250	BASE, MOTOR		6472902	MOTOR, ELEC., 1-1/2/3/4 HP, 3 PH, 900 & 1800 RPM, 230/460V, 184T, ODP
34	3712005	SHAFT, MOTOR BASE SUPPORT			
35	6716013	SCREW, SOC. HD. CAP, 3/8-16 X 1-1/4			
36	6670078	RING, RETAINING			
37	3584032	PIN, PIVOT			
38	3126008	FORK, V/S			
39	6518001	NUT, HEX., 1/2-13			
40	6718046	SCREW, SQ. HD., 1/2-13 X 1-3/4			
41	6515007	NUT, HEX. JAM, 5/16-18			
42	3673032	ROLLER, V/S CAM			
43	6095043	BUSHING, PS-R-306 X 3/8			
44	6715034	SCREW, HEX HD. CAP, 5/16-18 X 1-1/4			
45	6077053	BELT, V/S, No. 1922V443			
46	6077076	BELT, No. 7M710 POLYFLEX			
47	2719021	ASS'Y, V/S DRIVER SHEAVE			
48	2719035	ASS'Y, V/S HI-REV SHEAVE			

PARTS LIST: Variable Speed Assembly

NO. PART NO. DESCRIPTION

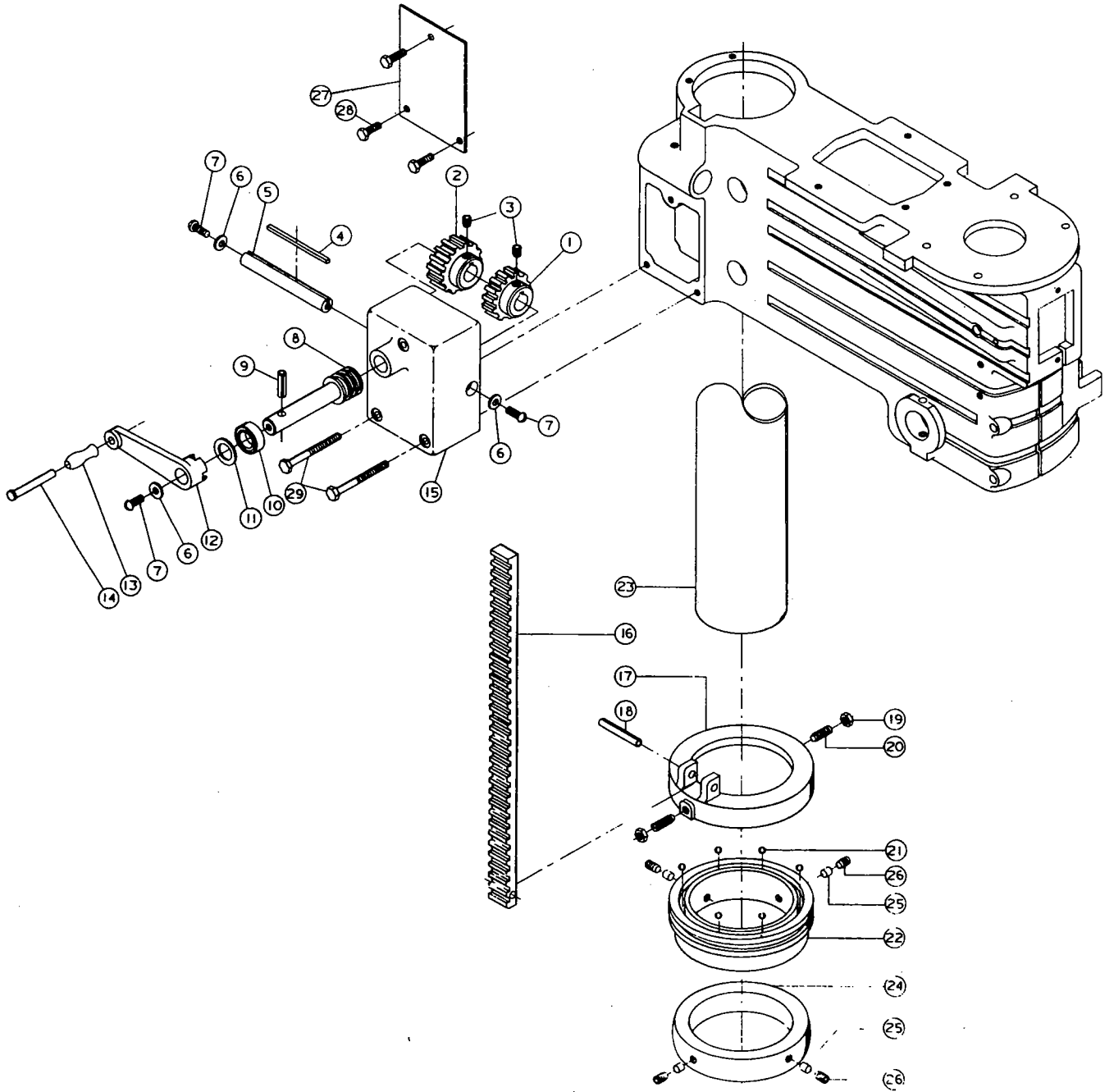
- 6471202 MOTOR, ELEC., HI-REV, 1-1/2 HP, 3 PH,
1200 RPM, 230/460V, 184T,ODP
- 6471501 MOTOR, ELEC., HI-REV, 2 HP, 3 PH,
1200 RPM, 230/460V, 182T, ODP



PARTS LIST: Head Raising Assembly

NO.	PART NO.	DESCRIPTION	NO.	PART NO.	DESCRIPTION
	2298016	MECHANISM, HEAD RAISING (Items 1 thru 15)	24	3096039	COLLAR, COLUMN
		1 SPINDLE TABLE			1 SPINDLE
		2 SPINDLE TABLE			2 SPINDLE
		3 SPINDLE TABLE			3 SPINDLE
		4 SPINDLE TABLE			4 SPINDLE
		6 SPINDLE TABLE			6 SPINDLE
		8 SPINDLE TABLE			8 SPINDLE
1	3237002	GEAR, WORM	25	3598023	PLUG, PROTECTOR, 7/16 X 3/16
2	3237001	GEAR, SPUR			1 SPINDLE
3	6714004	SCREW, SOC. SET, 1/4-20 X 1/4			2 SPINDLE
4	3388015	KEY, SQ., 3/16 X 3/16 X 2-1/4			3 SPINDLE
5	3701004	SHAFT, GEAR			4 SPINDLE
6	6861201	WASHER, FLAT 5/16			6 SPINDLE
7	6715132	SCREW, ROUND HD., 5/16-18 1 1/2			8 SPINDLE
8	3237013	GEAR, PINION	26	6718055	SCREW, CUP PT. SOC. SET, 1/2-13 X 1/2
9	6626040	PIN, SPRING, 1/4 X 1-1/4			1 SPINDLE
10	6064001	BEARING, THRUST, NICE 605			2 SPINDLE
11	6861602	SPACER, FLAT SHAFT, 1/2			3 SPINDLE
12	3268005	HANDLE, ELEVATING D-21			4 SPINDLE
13	3268201	HANDLE, NYLON MACHINE			6 SPINDLE
14	6624006	PIN, GROOVE, 1/4 X 3			8 SPINDLE
15	3298018	HOUSING, ELEVATING GEAR BOX	27	3104014	COVER, HEAD & TABLE
	2645001	ASS'Y, HEAD RAISING RACK (Items 16 thru 22)			1 SPINDLE
		1 SPINDLE TABLE			2 SPINDLE
		2 SPINDLE TABLE			3 SPINDLE
		3 SPINDLE TABLE			4 SPINDLE
		4 SPINDLE TABLE			6 SPINDLE
		6 SPINDLE TABLE			8 SPINDLE
		8 SPINDLE TABLE	28	6716038	SCREW, HEX. HD. CAP, 3/8-16 X 1/2
16	3650004	RACK, GEAR 13-1/4			1 SPINDLE
17	3096040	COLLAR, ELEVATING RACK BEARING			2 SPINDLE
18	6626033	PIN, SPRING, 3/16 X 2			3 SPINDLE
19	6515001	NUT, HEX, 5/16-18			4 SPINDLE
20	6715118	SCREW, HALF DOG PT. SOC. SET, 5/16-18 X 3/4			6 SPINDLE
21	6054002	BEARING, STEEL BALL, 3/8			8 SPINDLE
22	3046003	COLLAR, THRUST BEARING	29	6716042	SCREW, HEX HD. CAP, 3/8-16 X 3
23	3098005	COLUMN, BENCH MODEL			1 SPINDLE
		1 SPINDLE			2 SPINDLE
		2 SPINDLE			3 SPINDLE
		3 SPINDLE			4 SPINDLE
		4 SPINDLE			6 SPINDLE
		6 SPINDLE			8 SPINDLE
		8 SPINDLE			

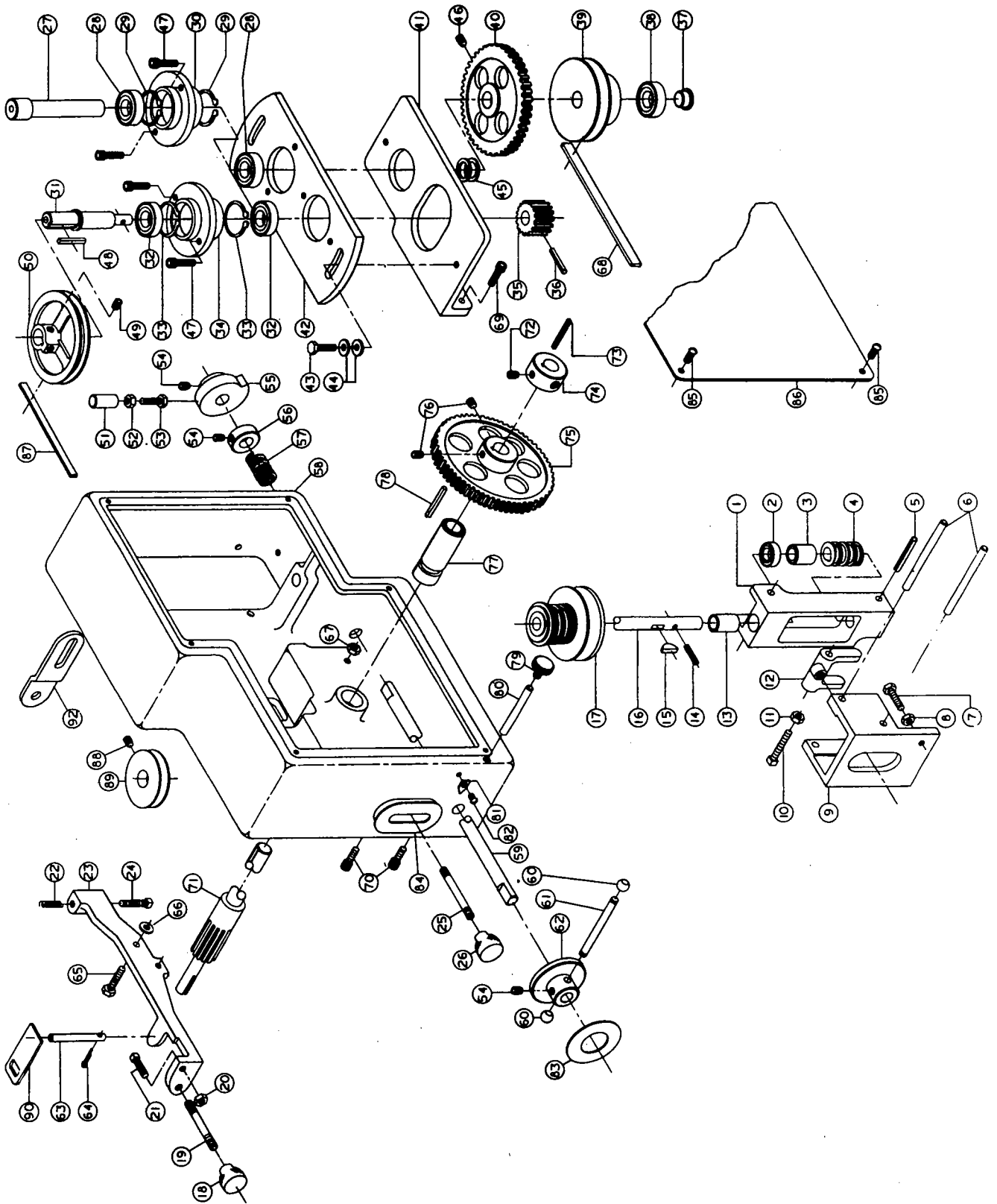
EXPLODED VIEW: Head Raising Assembly



PARTS LIST: Mechanical Powerfeed Assembly

NO.	PART NO.	DESCRIPTION	NO.	PART NO.	DESCRIPTION
	2192013	ASS'Y MECHANICAL FEED (Items 1 thru 92)	45	6861702	WASHER, FLAT NYLATRON, 5/8
	2192002	ASS'Y MECHANICAL FEED (Items 1 thru 70)	46	6715013	SCREW, SOC. SET CUP PT., 5/16-18 X 3/8
	2063036	ASS'Y, MECHANICAL FEED ENGAGING BRKT. (Items 1 thru 19)	47	6715024	SCREW, SOC. HD. CAP, 5/16-18 X 5/8
1	3065011	BRACKET, POWERFEED ENGAGING	48	3388006	KEY, SQUARE, 3/16 X 3/16 X 1-1/4
2	6064001	BEARING, THRUST, NICE No. 605	49	6715016	SCREW, SOC. SET CUP PT., 5/16-18 X 5/16
3	3741009	SPACER, WORM GEAR SHAFT	50	3716017	SHEAVE, SINGLE GROOVE, AZ-50 X 5/8
4	3865009	GEAR, WORM, W-12P		2601008	ASSY., MECHANICAL FEED PLUNGER (Items 51 thru 53)
5	6626040	PIN, SPRING, 1/4 X 1-1/4	51	3601010	PLUNGER, FEED ADJUST
6	3584005	PIN, PIVOT	52	6516001	NUT, HEX 3/8-16
7	6715032	SCREW, HEX. HD. CAP, 5/16-18 X1	53	6716031	SCREW, HEX. HD., 3/8-16 X 1
8	6515001	NUT, HEX, 5/16-18	54	6715016	SCREW, CUP PT. SOC. SET, 5/16-18 X 5/16
9	3063048	BRACKET, SHEAVE MOUNTING	55	3076013	CAM, FEED ADJUST
10	6716083	SCREW, SQ. HD., 3/8-16 X 1-3/4	56	3096243	COLLAR, 5/8
11	6516001	NUT, HEX., 3/8-16	57	6813006	SPRING, COMP, 5/16 X 1-1/2
12	3065002	BRACKET, OPERATING	58	3298063	HOUSING, MECHANICAL FEED
13	6095023	BUSHING, BRONZE, 5/8 X 3/4 X 1	59	3701025	SHAFT, FEED ADJUST
14	6626004	PIN, SPRING, 1/8 X 3/4	60	3406016	KNOB, HANDLE
15	6420000	KEY, WOODRUFF No. 404	61	3701022	SHAFT, HUB TURNING
16	3706002	SHAFT, WORM GEAR	62	3301008	HUB, FEED DIAL
17	2719022	ASS'Y, V/S DRIVING SHEAVE	63	3582005	PIN, TRIP PLUNGER
18	3406201	KNOB, TEARDROP	64	6622002	PIN, COTTER, 1/8 X 1
19	3709009	SHAFT, POWERFEED ENGAGING OPERATING	65	6716031	SCREW, HEX. HD. CAP, 3/8-16 X 1
	2025011	ASS'Y, MECHANICAL FEED ENGAGING ARM (Items 20 thru 26)	66	6861309	WASHER, FLAT, 3/8 (PLATED)
20	6516001	NUT, HEX., 3/8-16	67	6516001	NUT, HEX., 3/8-16
21	6716079	SCREW, SQ. HD., 3/8-16 X 1	68	6077034	BELT, V/S, 5L-310
22	6813017	SPRING, COMP. No. C2401	69	6716012	SCREW, SOC. HD. CAP, 3/8-16 X 1 (One not shown)
23	3025026	ARM, MECHANICAL FEED ENGAGING	70	6715025	SCREW, SOC. HD. CAP, 5/16-18 X 3/4
24	6718062	SCREW, SQ. HD., 1/2-13 X 1		2586006	ASS'Y., MECHANICAL FEED PINION (Items 71 thru 74)
25	3670039	ROD, HANDLE	71	3586029	SHAFT, POWERFEED PINION
26	3406201	KNOB, TEARDROP	72	6715013	SCREW, CUP PT. SOC. SET, 5/16-18 X 3/8
	2595009	ASS'Y, MECH. FEED PLATE & SHAFT (Items 27 thru 50)	73	3388004	KEY, SQUARE, 3/16 X 3/16 X 1
	2709012	ASS'Y, V/S DRIVEN SHAFT (Items 27 thru 30)	74	3301006	HUB, PINION OPERATING TURRET
27	3707001	SHAFT, SHEAVE MOUNTING	75	3237025	GEAR, WORM SPUR
28	6060004	BEARING, N.D. No. Z99R10	76	6715016	SCREW, CUP PT. SOC. SET, 5/16-18 X 5/16
29	6670043	RING, RETAINING, No. 5000-137	77	2729001	ASS'Y., SHAFT PINION SLEEVE
30	3298009	HOUSING, BEARING SHAFT	78	3388004	KEY, SQUARE, 3/16 X 3/16 X 1
	2709013	ASS'Y, V/S DRIVING SHAFT (Items 31 thru 36)	79	3695004	SCREW, LOCK
31	3700002	SHAFT, SMALL	80	3583017	PIN, STOP
32	6060004	BEARING, N.D. No. Z99R10	81	3604008	POINTER
33	6670043	RING, RETAINING, No. 5000-137	82	6706037	SCREW, RD. HD., No. 6-32 X 3/16
34	3298009	HOUSING, SHAFT BEARING	83	3684208	SCALE, PLATE DIAL
35	3237016	GEAR, FIBER, 1-1/4 X 3/4	84	3330214	PLATE, MECHANICAL FEED INSTRUCTION
36	6626005	PIN, SPRING, 1/8 X 7/8	85	6714063	SCREW, RD. HD., 1/4-20 X 1/2
37	3598002	PLUG, BEARING	86	3104034	COVER, MECH. FEED HOUSING
38	6060005	BEARING, BALL, FAFNIR 203PP	87	6077104	BELT, 4L-230
39	2719026	SHEAVE, V/S DRIVEN	88	6715015	SCREW, CUP PT. SOC. SET, 5/16-18 X 1/4
40	3237024	GEAR, UPPER POWERFEED DRIVE	89	3610006	PULLEY, DRIVE
41	3063070	BRACKET, BEARING HOUSING PLATE MOUNTING	90	3426018	LEVER, DEPTH STOP ADJUST
42	3595009	PLATE, BEARING HOUSING MTG.	91	3868021	WRENCH, DEPTH STOP NUT (Not shown)
43	6715032	SCREW, HEX. HD., 5/16-18 X 1 (one not shown)	92	3064078	BRACKET, POWERFEED MTG.
44	6861205	WASHER, FLAT, 5/16 (PLATED) (Two not shown)			

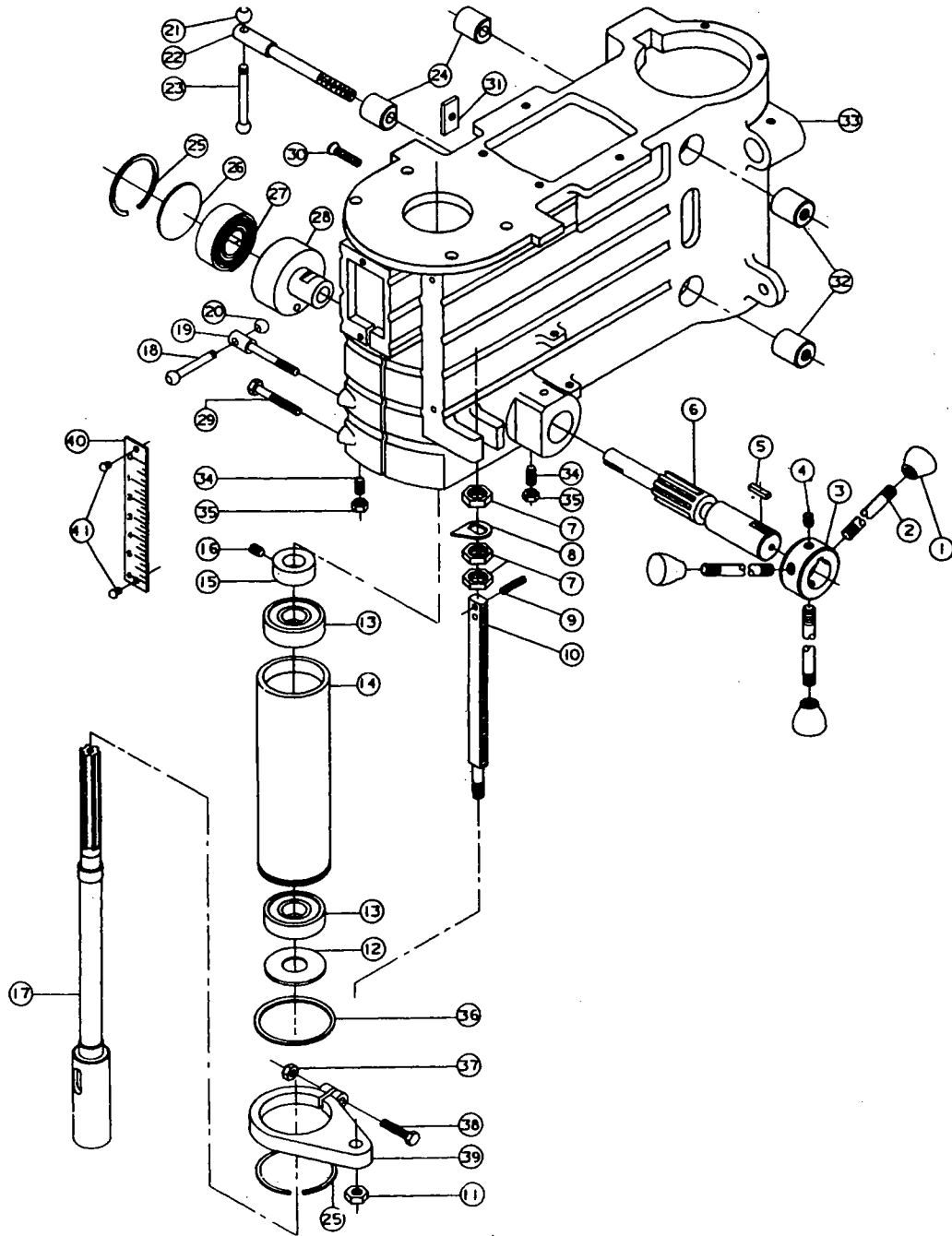
EXPLODED VIEW: Mechanical Powerfeed Assembly



PARTS LIST: Head Assembly

NO.	PART NO.	DESCRIPTION	NO.	PART NO.	DESCRIPTION
	2268006	ASS'Y., TURRET HANDLE (Items 1 & 2)	18	3268002	HANDLE
1	3406206	KNOB, PHENOLIC	19	3695010	SCREW, QUILL LOCK
2	3670025	HANDLE, KNOB	20	3406016	KNOB
	2277016	ASS'Y, HEAD (Items 3 thru 39)		2695015	ASS'Y., HEAD LOCKING SCREW (Items 21 thru 23)
	2686003	ASS'Y, PINION HUB (Items 3 thru 6)	21	3406016	KNOB
3	3301003	HUB, TURRET	22	3695002	SCREW, HEAD LOCKING
4	6715016	SCREW, CUP PT. SOC. SET, 5/16-18 X 5/16	23	3268002	HANDLE
5	3388004	KEY, 3/16 X 3/16 X 1	24	3448014	SLEEVE, PLAIN HEAD LOCKING
6	3586026	PINION, QUILL OPERATING	25	6670071	RING, RETAINING, RS-275
	2670006	ASS'Y., DEPTH ADJ. ROD (Items 7 thru 11)	26	3104010	COVER, SPRING
7	3528005	NUT, DEPTH ADJ. LOCK	27	6813026	SPRING, CLOCK
8	3604002	POINTER, DEPTH ADJ.	28	3298280	HOUSING, SPRING
9	6626035	PIN, SPRING, 3/16 X 5/8	29	6716114	SCREW, HEX. HD., 3/8-16 X 2-3/4
10	3670016	ROD, DEPTH ADJ.	30	6714056	SCREW, FLAT HD., 1/4-20 X 1
11	6566002	NUT, HEX. 3/8-24	31	3092012	CLAMP, SWITCH WIRE
	2640021	ASS'Y., No. 3 MT QUILL (Items 12 thru 17)	32	3448015	SLEEVE, THREADED HEAD LOCKING
12	3078006	CAP, QUILL BEARING	33	3277013	CASTING, HEAD
13	6060014	BEARING, BALL SKF No. 6206 2RS	34	6718038	SCREW, HALF DOG PT. SOC. SET 1/2-13 X 1-1/4
14	3640017	QUILL, SLIDING	35	6518001	NUT, HEX., 1/2-13
15	3096214	COLLAR, SPINDLE	36	6804005	SEAL, "O" RING RUBBER
16	6715015	SCREW, SOC. SET CUP PT., 5/16-18 X 1/4	37	6515001	NUT, HEX., 5/16-18
17	3749023	SPINDLE, No. 3 MT	38	6715044	SCREW, HEX. HD., 5/16-18 X 2
	2695009	ASS'Y, QUILL LOCKING SCREW (Items 18 thru 20)	39	3936004	YOKE, QUILL
			40	3684248	SCALE, DEPTH ADJ. PLATE
			41	6746001	SCREW, SELF-TAPPING No. 6-32

EXPLODED VIEW: Head Assembly



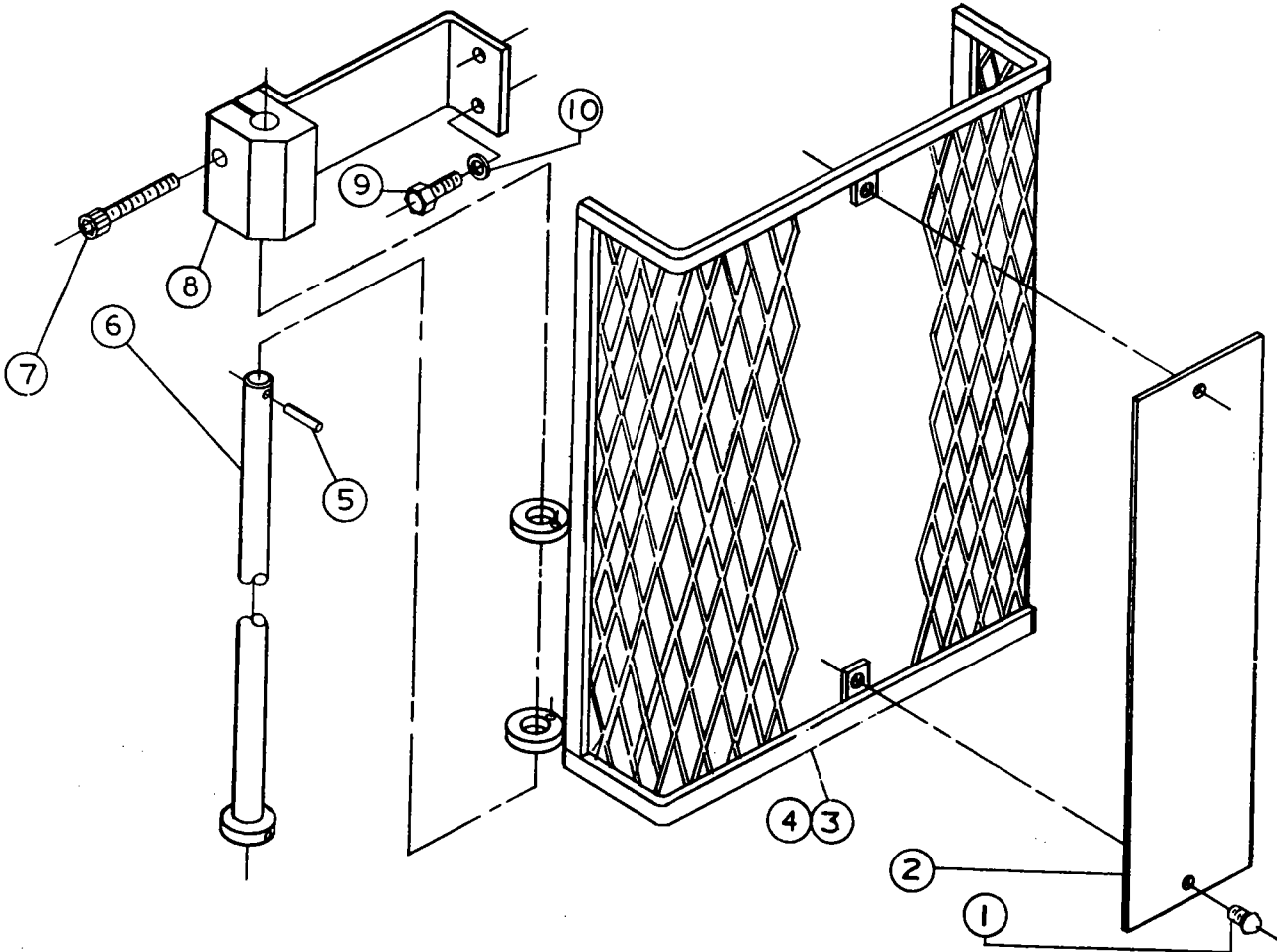
PARTS LIST: Guard Assembly (Optional)

NO. PART NO. DESCRIPTION

- 1 6710063 SCREW, BUTTON HD. SOC.,
No. 10-24 X 1/2
- 2 3720019 GUARD, PLASTIC
- 3 2250118 ASS'Y, DRILL PRESS GUARD
- 4 2250124 ASS'Y, DRILL PRESS W/ POWER-
FEED GUARD
- 5 6626032 PIN, SPRING, 3/16 X 1-1/4 (One
not shown)

NO. PART NO. DESCRIPTION

- 6 2709026 ASS'Y, SHAFT
- 7 6716016 SCREW, SOC. HD. CAP, 3/8-16
X 7/8
- 8 2092008 ASS'Y., GUARD CLAMP
- 9 6715035 SCREW, HEX. HD., 5/16-18 X 3/4
- 10 6861200 WASHER, LOCK, 5/16



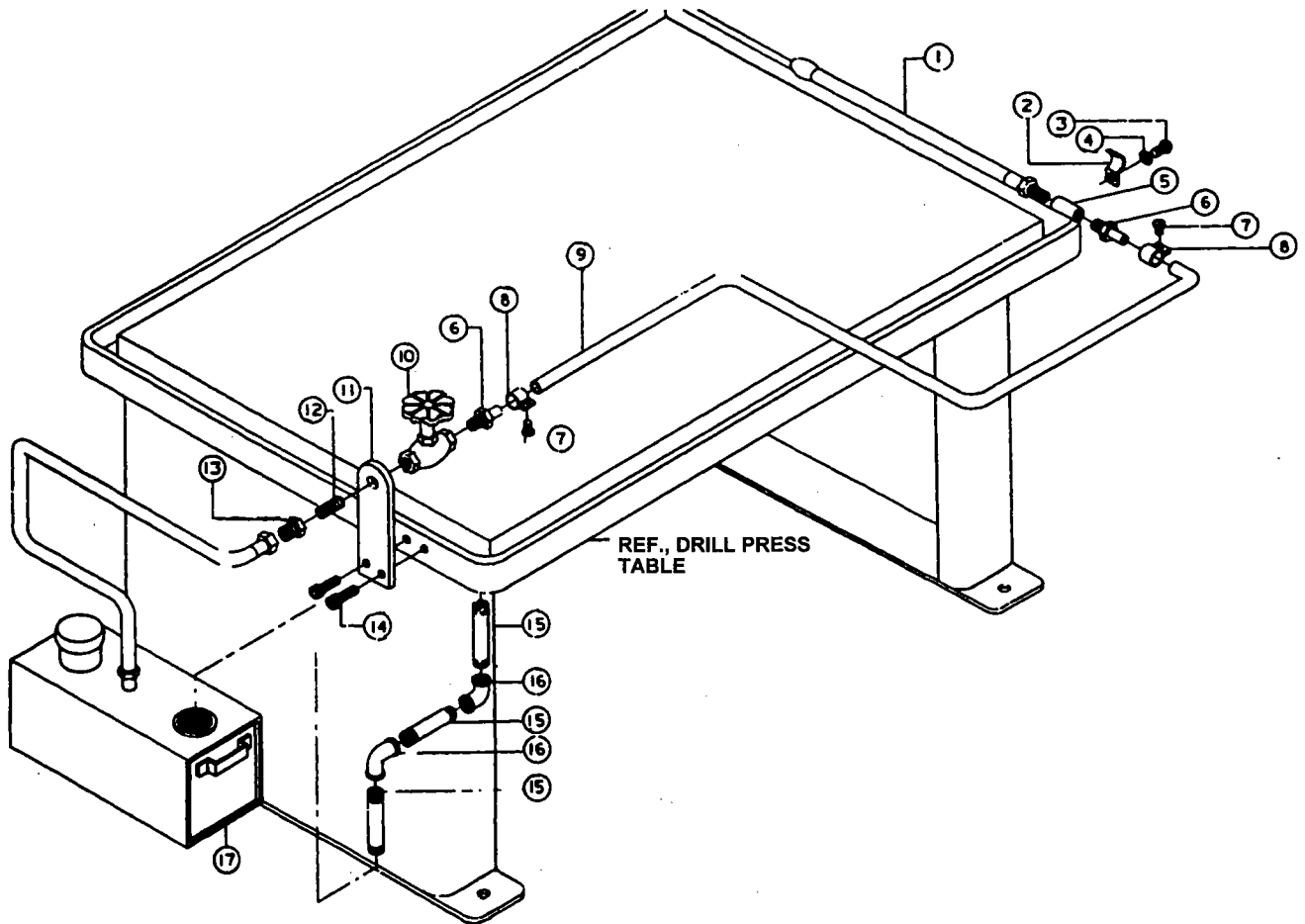
PARTS LIST: Coolant Kit, 1 Spindle (Optional)

NO. PART NO. DESCRIPTION

1	6498001	NOZZLE, 1/8-27 X 24"
2	6122007	CLAMP, CONDUIT, 1/4
3	6714114	SCREW, RD. HD. CAP, 1/4-20 X 3/8
4	6861100	WASHER, LOCK, 1/4
5	6634044	COUPLING, PIPE, 1/8
6	6284073	FITTING, TUBE ADAPTOR, 1/8 MBS 300, 1/8-27
7	6716007	SCREW, SELF TAPPING PAN HD., No. 8 X 5/8
8	6122023	CLAMP, TUBE, C3053A-A
9	6833009	TUBE, BLACK PLASTIC, 3/8
10	6850015	VALVE, PRESSURE, GLOBE No. 13, 1/8

NO. PART NO. DESCRIPTION

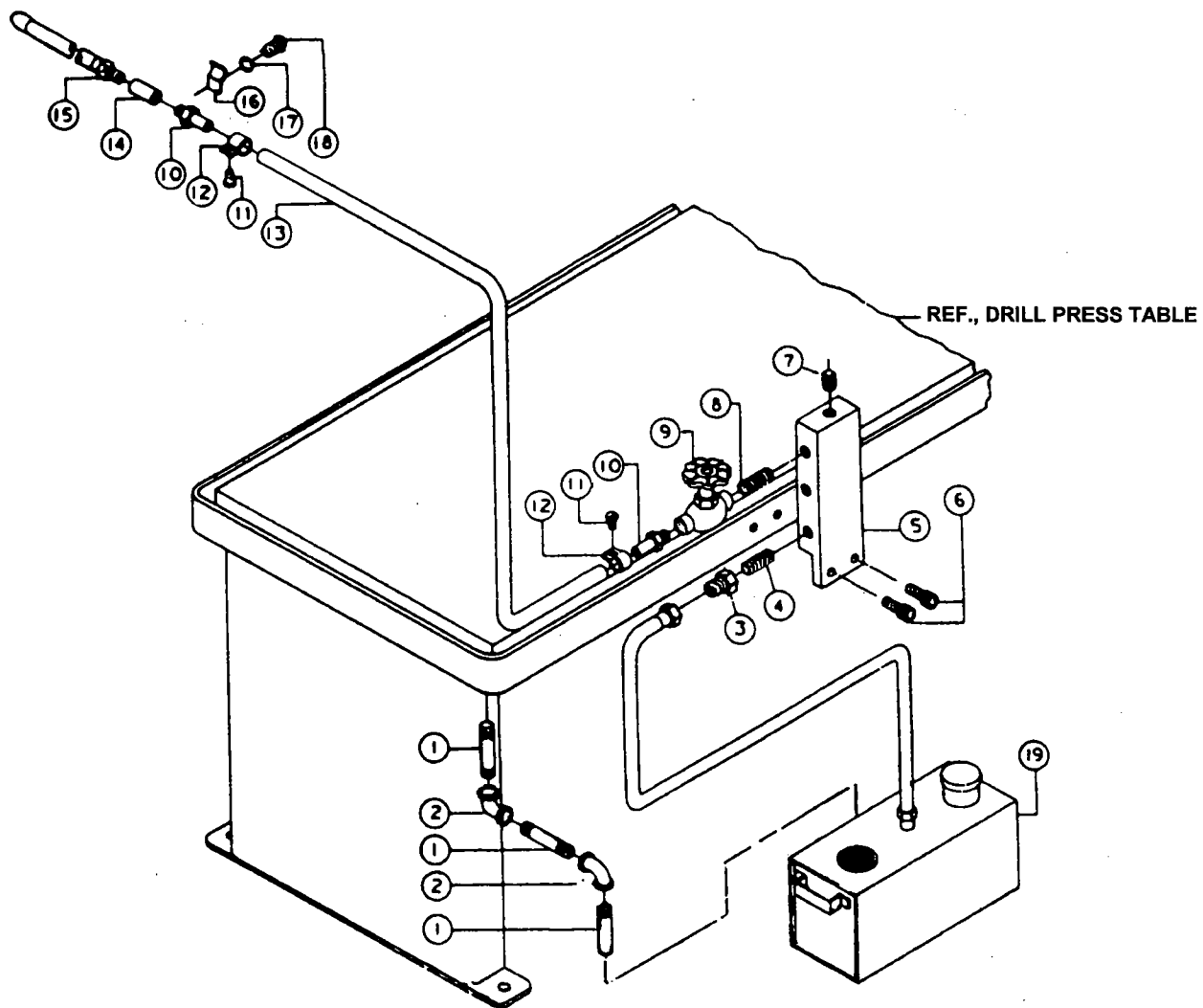
11	3462002	MANIFOLD, SINGLE SPINDLE COOLANT SYSTEM
12	6634071	PIPE, CLOSE NIPPLE FITTING, 1/8 X 3/4
13	6634081	PIPE, HEX. BUSHING FITTING, 3/8 X 1/8
14	6714018	SCREW, SOC. HD. CAP, 1/4-20 X 3/4
15	6634020	PIPE, FITTING, 1/2 X 4
16	6634038	PIPE, FITTING, 1/2-14, 90°
17	6160002	SYSTEM, COOLANT, H-16



PARTS LIST: Coolant Kit, 2, 3 & 4 Spindles (Optional)

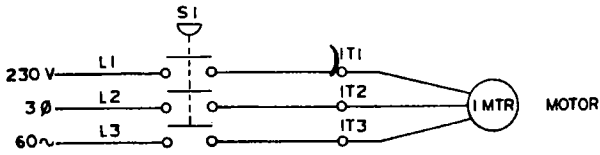
NO.	PART NO.	DESCRIPTION	NO.	PART NO.	DESCRIPTION
1	6634020	PIPE, FITTING, 1/2 X 4 2 SPINDLE 3 SPINDLE 4 SPINDLE	11	6716007	SCREW, SELF TAPPING PAN HD., No. 8 X 5/8 2 SPINDLE 3 SPINDLE 4 SPINDLE
2	6634038	PIPE, FITTING, 1/2-14, 90° FEMALE 2 SPINDLE 3 SPINDLE 4 SPINDLE	12	6122023	CLAMP, TUBE, C3053A-6 2 SPINDLE 3 SPINDLE 4 SPINDLE
3	6634082	PIPE, FITTING, 3/8 X 1/4 HEX BUSHING 2 SPINDLE 3 SPINDLE 4 SPINDLE	13	6833009	TUBE, BLACK PLASTIC, 3/8 2 SPINDLE 3 SPINDLE 4 SPINDLE
4	6634090	PIPE, FITTING, 1/4 CLOSE NIPPLE 2 SPINDLE 3 SPINDLE 4 SPINDLE	14	6634044	COUPLING, PIPE, 1/8 2 SPINDLE 3 SPINDLE 4 SPINDLE
5	3462001	MANIFOLD, COOLANT SYSTEM 2 SPINDLE 3 SPINDLE 4 SPINDLE	15	6498001	NOZZLE, 1/8-27 X 24 2 SPINDLE 3 SPINDLE 4 SPINDLE
6	6714018	SCREW, SOC. HD. CAP, 1/4-20 X 3/4 2 SPINDLE 3 SPINDLE 4 SPINDLE	16	6122007	CLAMP, CONDUIT, 1/4 2 SPINDLE 3 SPINDLE 4 SPINDLE
7	6638001	PLUG, PIPE, 1/8-27 2 SPINDLE 3 SPINDLE 4 SPINDLE	17	6861100	WASHER, LOCK, 1/4 2 SPINDLE 3 SPINDLE 4 SPINDLE
8	6634071	PIPE, FITTING, 1/8 X 3/4 2 SPINDLE 3 SPINDLE 4 SPINDLE	18	6714114	SCREW, RD. HD. CAP, 1/4-20 X 3/8 2 SPINDLE 3 SPINDLE 4 SPINDLE
9	6850015	VALVE, PRESSURE, GLOBE No. 13, 1/8 2 SPINDLE 3 SPINDLE 4 SPINDLE	19	6160002	SYSTEM, COOLANT, H-16 2 SPINDLE 3 SPINDLE 4 SPINDLE
10	6284073	FITTING, TUBE ADAPTOR, 1/8-27 2 SPINDLE 3 SPINDLE 4 SPINDLE			

EXPLODED VIEW: Coolant Kit, 2, 3 & 4 Spindles (Optional)



ELECTRICAL SCHEMATIC 1200 Drill Press

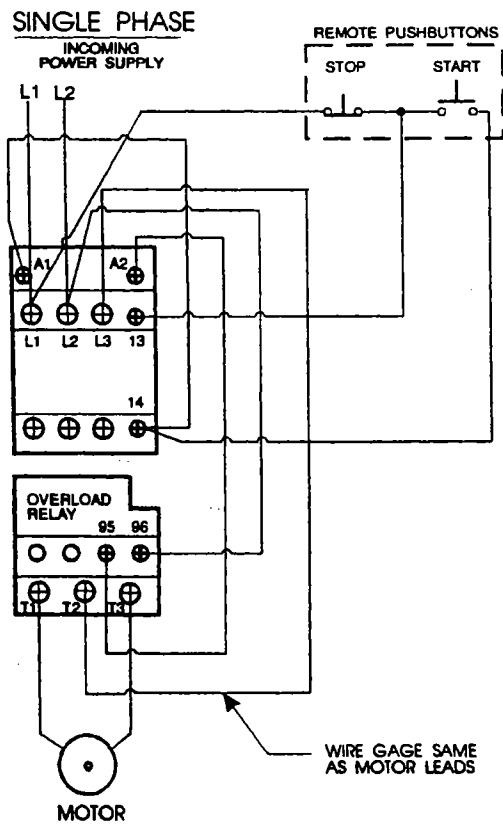
MANUAL



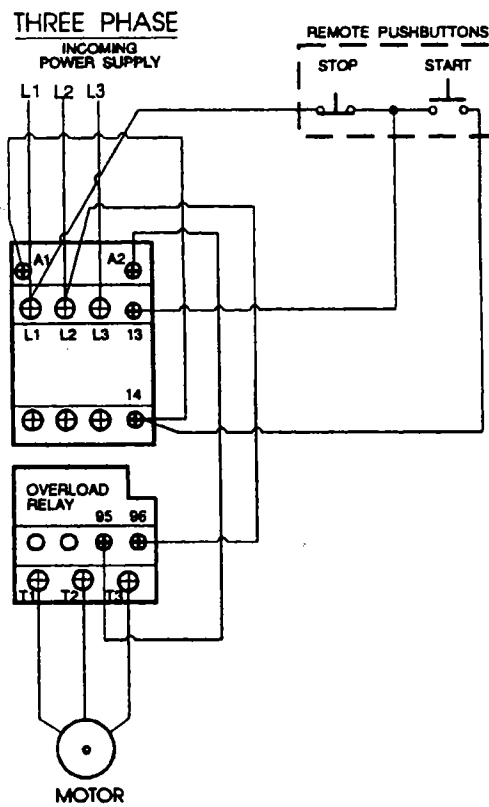
REF.	QTY.	POWERMATIC NO.	MFG. DESCRIPTION
S 1	1	(3Ø) 6821135	SWITCH, FURNAS 12BA34P
		(1Ø) 6821134	SWITCH FURNAS 12BA24P

IEC CONTROL, MAGNETIC STARTER

SINGLE PHASE



THREE PHASE



NOTES

To order parts or reach our service department, please call our toll-free number between 8:00 a.m. and 4:30 p.m. (CST), Monday through Friday. Having the Model Number and Serial Number of your machine available when you call will allow us to serve you quickly and accurately. Locating the EDP number of the part(s) required from your parts manual will also expedite your order.

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