

15" DRILL PRESS

Models 1150A & 1150HD

Instruction Manual & Parts List

M-0460256



POWERMATIC®

(800) 248-0144
www.powermatic.com

This manual has been prepared for the owner and operators of a Powermatic Model 1150A or 1150HD, 15" Drill Press. Its purpose, aside from machine operation, is to promote safety through the use of accepted correct operating and maintenance procedures. Completely read the safety and maintenance instructions before operating or servicing the machine. To obtain maximum life and efficiency from your drill press and to aid in using the machine safely, read this manual thoroughly and follow all instructions carefully.

Warranty & Service

The JET Group warrants every product it sells. If one of our tools needs service or repair, one of our Authorized Repair Stations located throughout the United States can give you quick service.

In most cases, any one of these JET Group Repair Stations can authorize warranty repair, assist you in obtaining parts, or perform routine maintenance and major repair on your JET, Performax or Powermatic tools.

For the name of an Authorized Repair Station in your area, please call 1-800-274-6848.

More Information

Remember, the JET Group is consistently adding new products to the line. For complete, up-to-date product information, check with your local JET Group distributor.

JET Group Warranty

The JET Group (including Performax and Powermatic brands) makes every effort to assure that its products meet high quality and durability standards and warrants to the original retail consumer/purchaser of our products that each product be free from defects in materials and workmanship as follow: 1 YEAR LIMITED WARRANTY ON ALL PRODUCTS UNLESS SPECIFIED OTHERWISE. This Warranty does not apply to defects due directly or indirectly to misuse, abuse, negligence or accidents, normal wear-and-tear, repair or alterations outside our facilities, or to a lack of maintenance.

THE JET GROUP LIMITS ALL IMPLIED WARRANTIES TO THE PERIOD SPECIFIED ABOVE, FROM THE DATE THE PRODUCT WAS PURCHASED AT RETAIL. EXCEPT AS STATED HEREIN, ANY IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS ARE EXCLUDED. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG THE IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU. THE JET GROUP SHALL IN NO EVENT BE LIABLE FOR DEATH, INJURIES TO PERSONS OR PROPERTY, OR FOR INCIDENTAL, CONTINGENT, SPECIAL, OR CONSEQUENTIAL DAMAGES ARISING FROM THE USE OF OUR PRODUCTS. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

To take advantage of this warranty, the product or part must be returned for examination, postage prepaid, to an Authorized Repair Station designated by our office. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection discloses a defect, we will either repair or replace the product, or refund the purchase price if we cannot readily and quickly provide a repair or replacement, if you are willing to accept a refund. We will return repaired product or replacement at JET's expense, but if it is determined there is no defect, or that the defect resulted from causes not within the scope of JET's warranty, then the user must bear the cost of storing and returning the product. This warranty gives you specific legal rights; you may also have other rights which vary from state to state.

The JET Group sells through distributors only. Members of the JET Group reserve the right to effect at any time, without prior notice, those alterations to parts, fittings, and accessory equipment which they may deem necessary for any reason whatsoever.

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SAFETY RULES

As with all machines, there is a certain amount of hazard involved with the use of this drill press. Use the machine with the respect and caution demanded where safety precautions are concerned. When normal safety precautions are overlooked or ignored, personal injury to the operator can result.

Read, understand and follow the safety and operating instructions found in this manual. Know the limitations and hazards associated with an 1150A or 1150HD Drill Press.

Electrical grounding. 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.

Eye Safety. Wear an approved safety face shield, goggles or glasses to protect eyes. (NOTE: Common eyeglasses are *not* safety glasses.)

Personal Protection. Before operating the machine, remove tie, rings, watch and other jewelry and roll up sleeves above the elbow. Remove all loose outer clothing and confine long hair. Protective type footwear should be worn. Where the noise exceeds the level of exposure allowed in Section 1910.95 of the OSHA regulations, use hearing protective devices. Do not wear gloves.

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.

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.

Operator Position. Maintain a balanced stance and keep your body under control at all times. Do not over-reach.

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.

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.

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.

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.

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.

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.**

Spindle Rotation: Be sure the rotation of the spindle is correct for the tool being used.

Machine Adjustments: Make all machine adjustments with power off except speed on a variable speed model.

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.

Avoid Accidental Starting: Make certain the motor switch is in the "off" position before connecting power to the machine.

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.

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

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

Misuse: Do not use the 1150A 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 an 1150A Drill Press with a motor larger than 1 horsepower nor with a motor with a speed greater than 4800 rpm unless specifically authorized to do so in writing by Powermatic.

Drugs, alcohol, medication. Do not operate this machine while under the influence of drugs, alcohol, or any medication.

Health Hazards. Some dust created by power sanding, sawing, grinding, drilling and other construction activities contains chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- * Lead from lead-based paint.
- * Crystalline silica from bricks and cement and other masonry products.
- * Arsenic and chromium from chemically-treated lumber.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals, work in a well-ventilated area, and work with approved safety equipment, such as those dust masks that are specifically designed to filter out microscopic particles.

Familiarize yourself with the following safety notices used in this manual:



CAUTION: (This means that if precautions are not heeded, it may result in minor or moderate injury and/or possible machine damage)



WARNING: (This means that if precautions are not heeded, it could result in serious injury or possibly even death).

 **SAFETY**

Familiarize yourself with the location of these safety decals on your drill press.

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DANGER

HEAD WILL FALL IF UNCLAMPED WITH THE SAFETY COLLAR LOOSE. MAKE SURE SAFETY COLLAR IS LOCKED TO COLUMN BEFORE UNCLAMPING HEAD WITH COLUMN CLAMP SCREWS. SEE INSTRUCTIONS FOR PROPER SPINDLE HEAD RAISING AND LOWERING.

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SAFETY RULES

CAREFULLY READ INSTRUCTION MANUAL BEFORE OPERATING MACHINE.

DO NOT OPERATE WITHOUT ALL GUARDS AND COVERS IN POSITION. BE SURE MACHINE IS ELECTRICALLY GROUNDED.

REMOVE OR FASTEN LOOSE ARTICLES OF CLOTHING SUCH AS NECKTIES, ETC. CONFINE HAIR.

REMOVE JEWELRY SUCH AS FINGER RINGS, WATCHES, BRACELETS, ETC.

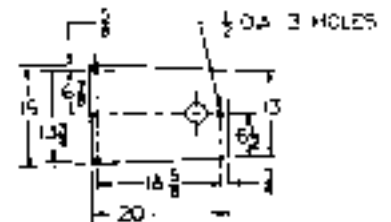
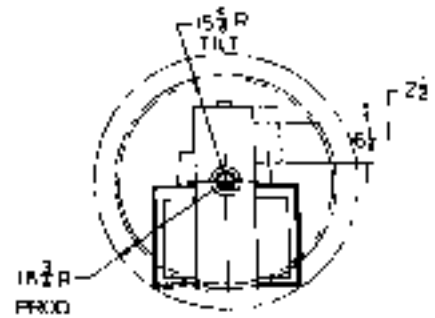
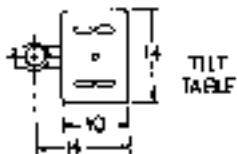
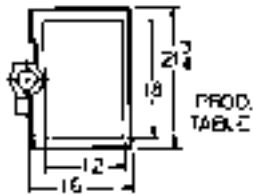
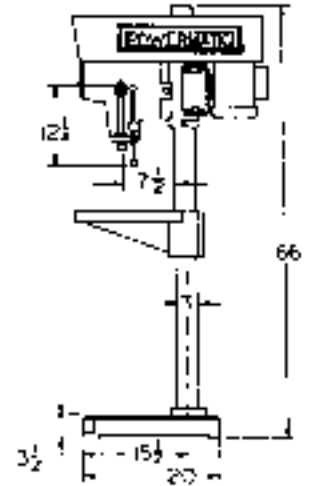
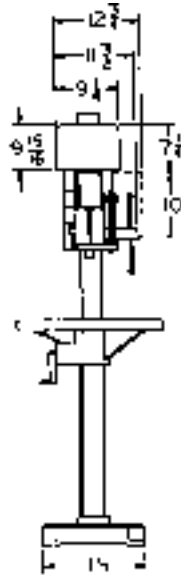
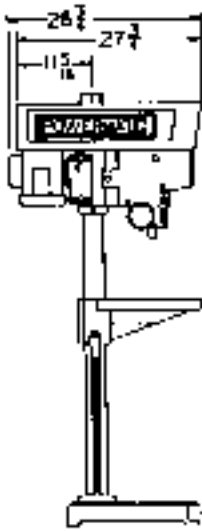
USE SAFETY FACE SHIELD, GOGGLES, OR GLASSES TO PROTECT EYES AND OTHER PERSONAL SAFETY EQUIPMENT AS REQUIRED.

STOP MACHINE BEFORE MAKING ADJUSTMENTS OR CLEANING CHIPS FROM WORK AREA.

KEEP THE FLOOR AROUND THE MACHINE CLEAN AND FREE FROM SCRAPS, SAWDUST, OIL OR GREASE TO MINIMIZE THE DANGER OF SLIPPING.

TO AVOID SERIOUS INJURY, SECURELY CLAMP OR BLOCK WORK PIECE, JIG, OR FIXTURE TO PREVENT ROTATION SHOULD DRILL SEIZE-UP OCCUR.

DIMENSIONAL DRAWINGS (1150A and 1150HD)



SPECIFICATIONS 1150A Drill Press

Spindle	steel, 10-spline, #33 Jacobs Taper with 0"-1/2" capacity chuck	
Spindle Travel	6"	
Quill Diameter	2-3/16"	
Column Outside Diameter	3"	
Column Wall Thickness	3/16"	
Column Length, Floor Model	66"	
Column Length, Bench Model	42"	
Table Working Surface:		
Tilting Table	10" x 14"	
Production Table	12" x 18"	
Base Working Surface	8-1/2" x 12"	
Drilling Capacity (Cast Iron)	5/8"	
Tapping Capacity (Cast Iron)	1/2"	
Drilling Capacity (Steel)	1/2"	
Tapping Capacity (Steel)	3/8"	
Throat Depth	Drills to center of 15" dia.	
Spindle Nose to:	TABLE	BASE
Floor Model - Production Table	37-1/4"	47-1/4"
Floor Model - Tilting Table	41"	46-1/4"
Key Chuck to:		
Floor Model - Production Table	36-3/4"	47-1/4"
Floor Model - Tilting Table	40-1/2"	46"
T-slots use Standard T-Bolts	1/2"	
Spindle Speeds:		
Variable Speed Models		
1800 RPM Motor	450-4800 RPM	
1200 RPM Motor	300-3200 RPM	
Step Pulley Models		
1800 RPM Motor	400-840-1580-2800-5300 RPM	
1200 RPM Motor	260-560-1050-1875-3550 RPM	
Shipping Weight	323 lbs.	

SPECIFICATIONS 1150HD Drill Press

Spindle; Steel	10-spline, #33 Jacobs Taper with 0"-1/2" capacity chuck	
Spindle Travel	6"	
Quill Diameter	2-3/16"	
Column Outside Diameter	3"	
Column Wall Thickness	3/16"	
Column Length, Floor Model	66"	
Table Working Surface:		
Tilting Table	10" x 14"	
Production Table	12" x 18"	
Base Working Surface	8-1/2" x 12"	
Drilling Capacity (Cast Iron)	5/8"	
Tapping Capacity (Cast Iron)	1/2"	
Drilling Capacity (Steel)	1/2"	
Tapping Capacity (Steel)	3/8"	
Throat Depth	Drills to center of 15" dia.	
Key Chuck to:	TABLE	BASE
Floor Model - Production Table	36-3/4"	47-1/4"
Floor Model - Tilting Table	40-1/2"	46"
Spindle Speeds:		
Electronic Variable Speed Model		
Low Range	150-700 RPM	
Medium Range	400-1600 RPM	
High Range	1050-4200 RPM	
Step Pulley Models		
1800 RPM Motor	400-840-1580-2800-5300 RPM	
1200 RPM Motor	260-560-1050-1875-3550 RPM	
Overall height	66"	
Weight	432 lbs.	
Motor (horsepower)		
Electronic Variable Speed	1 HP	
Step Pulley	3/4 HP	

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. If your drill press is not equipped with an optional head raising assembly, you can raise the head by proceeding as follows:

1. Place a block of wood on top of table and under spindle nose. Raise table until spindle nose contacts the block.
2. Loosen head locking handles, bumping them lightly to make certain they release.
3. Turn handle counter - clockwise (toward the operator). Head will move upward 6".
4. Lock head again with locking handles, raise table to a position just under spindle nose and repeat steps 2 through 4.
5. If the above procedure is too slow, use a minimum of three men to move head to its proper height; two to lift head and one to perform the loosening and locking of the handles.
6. After head is at proper height, secure tightly, then slide the safety collar up and lock it in place under the head. This will prevent the head from falling if loosened for swing drilling operations.



WARNING: The drill head will fall if the locking handles are loosened and the safety collar is not secured beneath it. Always lock the safety collar after head has been positioned.

7. Visually align spindle with table and base.

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 alignment of 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 in legs.

MOTOR INSTALLATION

Step Pulley Models (1150A):

If your machine was ordered less motor, or if the motor is being replaced, the following instructions will make installation easier.

- a. Place motor pulley on motor shaft and insert key.
- b. Raise drill press table as shown in Fig. 1. Place motor upright on table and install motor to motor mount, using (4) 5/16-18 hex nuts. Align motor and spindle pulley and tighten motor pulley set screws.
- c. Loosen lock handle (Fig. 2) and place belt over pulleys and into lowest speed grooves. Push motor base clamp to rear for light belt tension and turn lock screw clockwise to lock. Too much tension will cause excessive vibration, shaft breakage, bearing noise and wear.

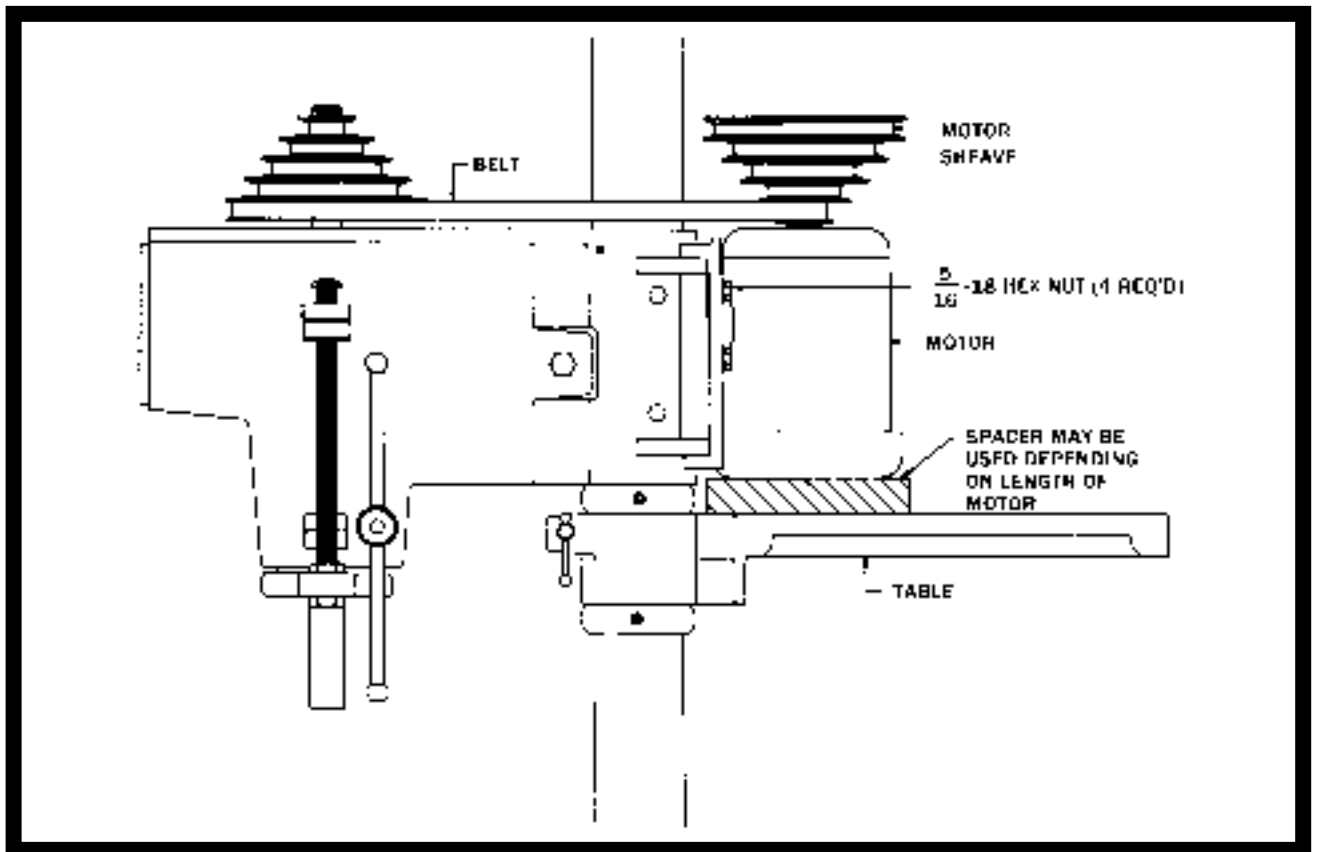


FIGURE 1
 MOTOR INSTALLATION

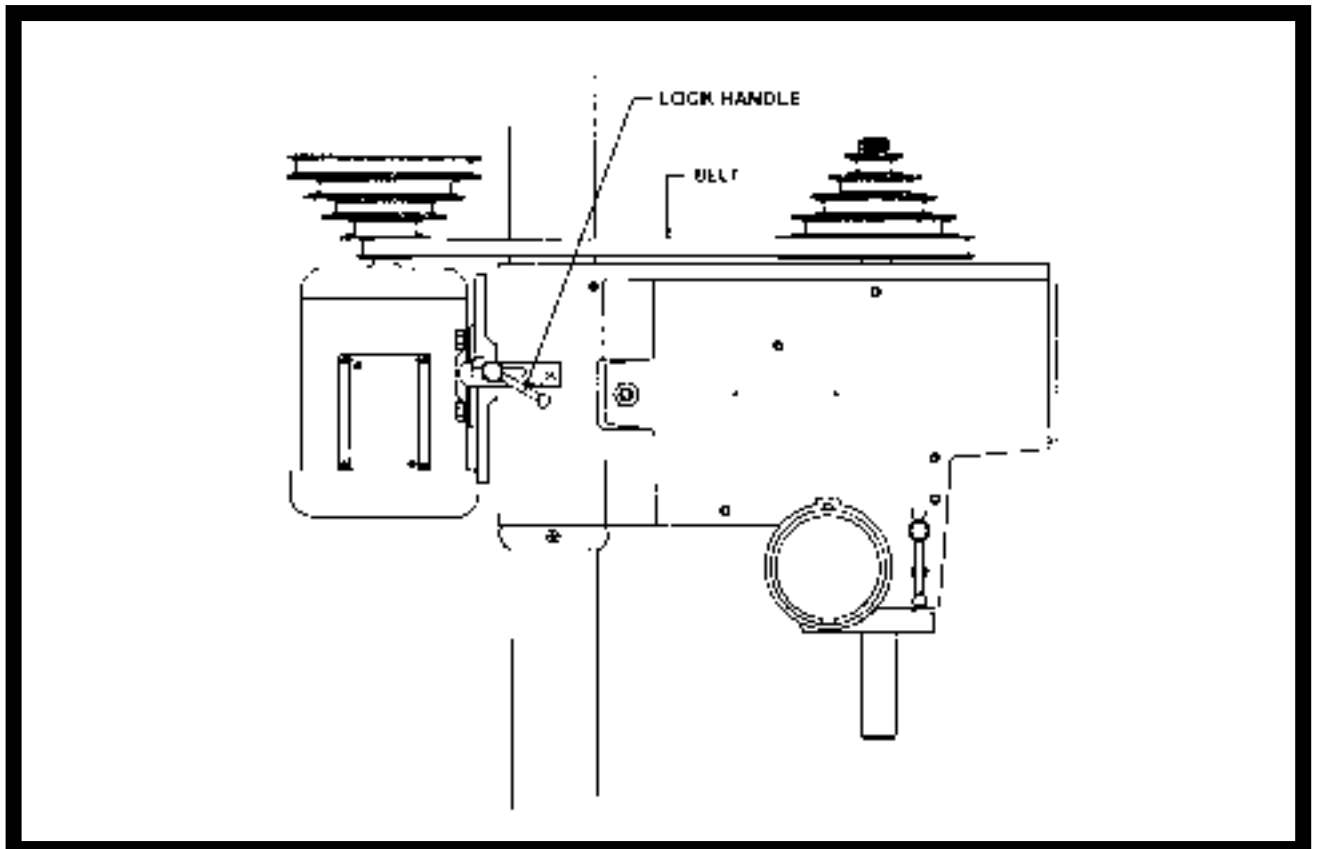


FIGURE 2
 BELT TENSIONING

Variable Speed Models (1150HD):

Powermatic prefers to ship all variable speed drill presses with motors installed. However, if the machine was ordered less motor, or a motor is being replaced, the following instructions apply.

- a. Remove variable speed control hub (Fig. 3), from the shaft. Then remove guard retaining screws and lift guard from machine.
- b. Raise drill press table and lock in position (Fig. 1). Place motor on table in upright position and attach motor to motor mount, using (4) 5/16-18 hex nuts.
- c. Place variable speed motor pulley on motor shaft (spring up); open pulley by placing variable speed belt between halves and pulling outward on belt. Insert key in keyway, then tighten screws in the bottom side of the pulley flange.
- d. Before replacing guard - temporarily replace variable speed control hub (Fig. 4). Turn machine on. The belt should be in a horizontal plane. If belt is cocked at an angle, shut off the motor, loosen motor pulley and move on shaft until belt is level. Secure setscrew. (See section on changing speeds for setting speed range.)
- e. Remove handle - replace guard, then control hub. Machine is now ready for operation.

NOTE: The above operations are easier to perform with head raised to its maximum height (flush with top of column) since it is easier to remove the belt guard with this position.

CHANGING SPEEDS

Speed changes on step pulley models are to be made with the machine not running - loosen motor base clamp (Fig. 2) and pull handle toward operator. Belt is now free to move to any of the 5 speeds available. When speed choice is made, move handle to rear for proper tension and lock the motor base.

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 unlocking the setscrews in the upper sheave half and turning the top nut on the spline drive (see Fig. 4) clockwise to decrease speed and counterclockwise to increase speed.

To set speeds, adjust cam to minimum RPM, adjust by means of nut on the spline driver 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. If there is a minimum of slack, the motor and belt system are properly adjusted in this position. The upper sheave on the spline driver has two setscrews which must be unlocked for the sheave to be moved. After adjustment lock the setscrews bring the lock nut down against the hub of the upper sheave and bend a tab of the lockwasher into the nut to lock its position.

INSTALLING CHUCK

1. Wipe off the No. 33 spindle taper and tapered socket in chuck body (Fig. 5) with a clean cloth. Make sure no foreign particles are left on these surfaces which could prevent proper seating of the two parts.
2. Apply a light film of oil on the spindle taper and place chuck on end of spindle (Fig. 5). Screw chuck collar on to the threads at end of spindle. Hold spindle pulley with one hand to keep spindle from rotating and tighten the chuck collar with drill chuck key.
3. When removal of the chuck is required - disconnect power source. Hold top spindle pulley with one hand and using chuck key handle, loosen chuck collar by turning counter-clockwise (Fig. 5). Continued rotation of the collar will force the chuck off tapered spindle. **NEVER** attempt to drive or wedge chuck off as damage could result to chuck, spindle nose and spindle bearings.

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. 6) 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.

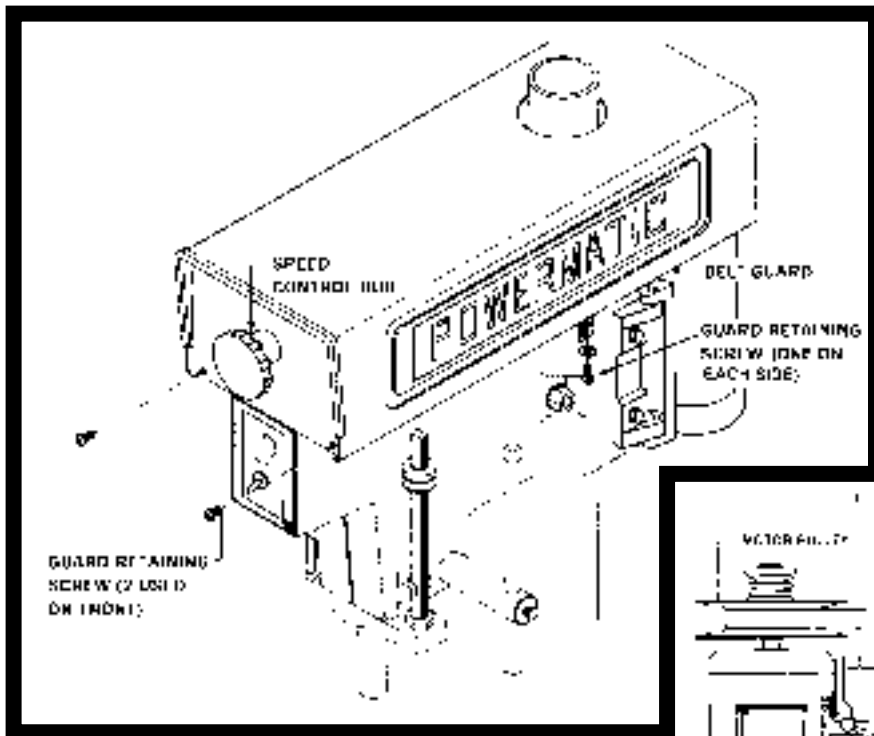


FIGURE 3
V/S GUARD REMOVAL

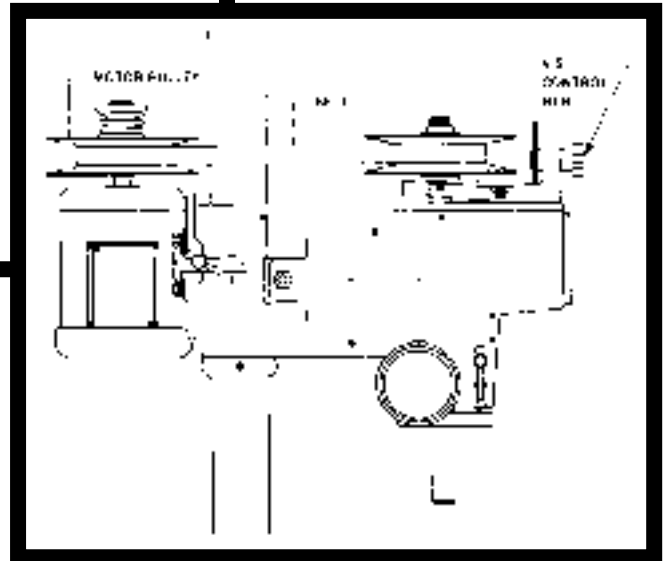


FIGURE 4
V/S SPEED ADJUSTMENT

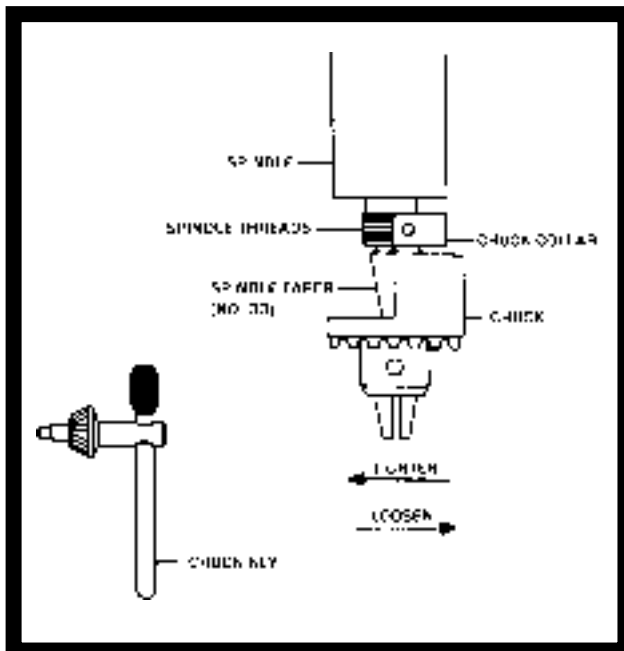


FIGURE 5
KEY CHUCK INSTALLATION

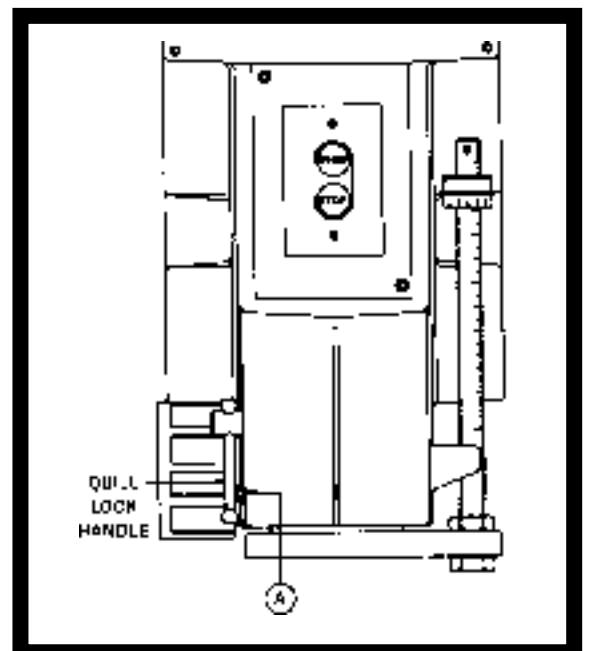


FIGURE 6
QUILL FIT UP ADJUSTMENT

QUILL RETURN SPRING ADJUSTMENT

Spring tension for return of the 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. 7) 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 lockscrew (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. 7) and loosen lockscrew (A). Let spring unwind slowly, by allowing housing to turn in hand.
2. Loosen setscrew (C) (Fig. 6) and remove nut (D) on bottom of depth stop rod. Unscrew and remove depth stop.
3. Lower quill assembly to the position where the turret pinion shaft can be removed (E). Entire quill assembly will then slide out of head.

To change spindles, follow the above steps, then (Fig. 8):

1. Loosen setscrew in collar (A). To reach this screw, insert a 5/32" Allen wrench through hole (B) 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. If necessary, remove lock ring (F) and cover plate (G) (Fig. 7) from spring housing and make certain tongue on return spring (H) 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.

INVERTER DRIVE SYSTEM (1150HD only)

The 1150HD Drill Press utilizes the latest technology in A.C. inverter drives to provide infinitely variable spindle speeds. The inverter controls the speed of the motor by varying the frequency of the voltage supplied to the motor. The inverter provides an acceleration ramp that eliminates the shock of normal across-the-line starting. Also a braking feature eliminates long coasting periods when the drill press is turned off.

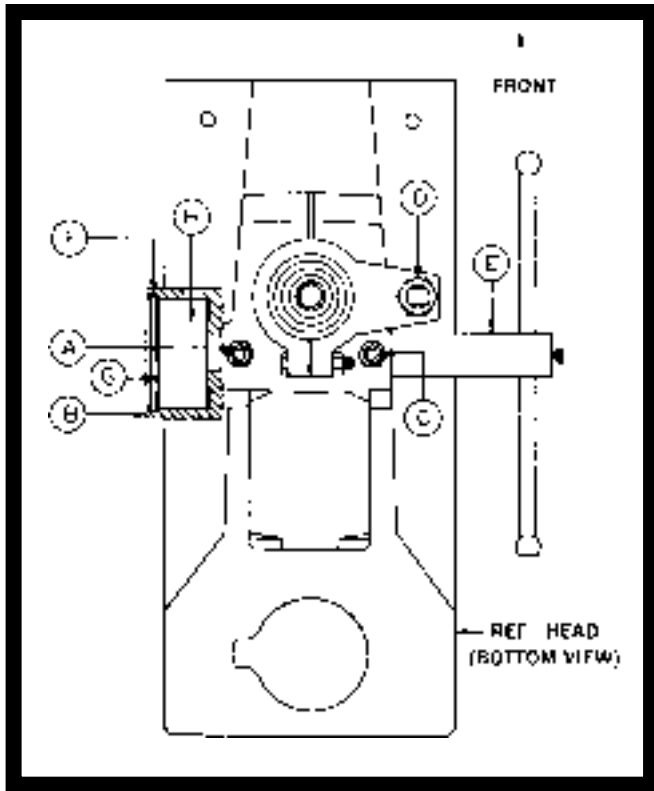
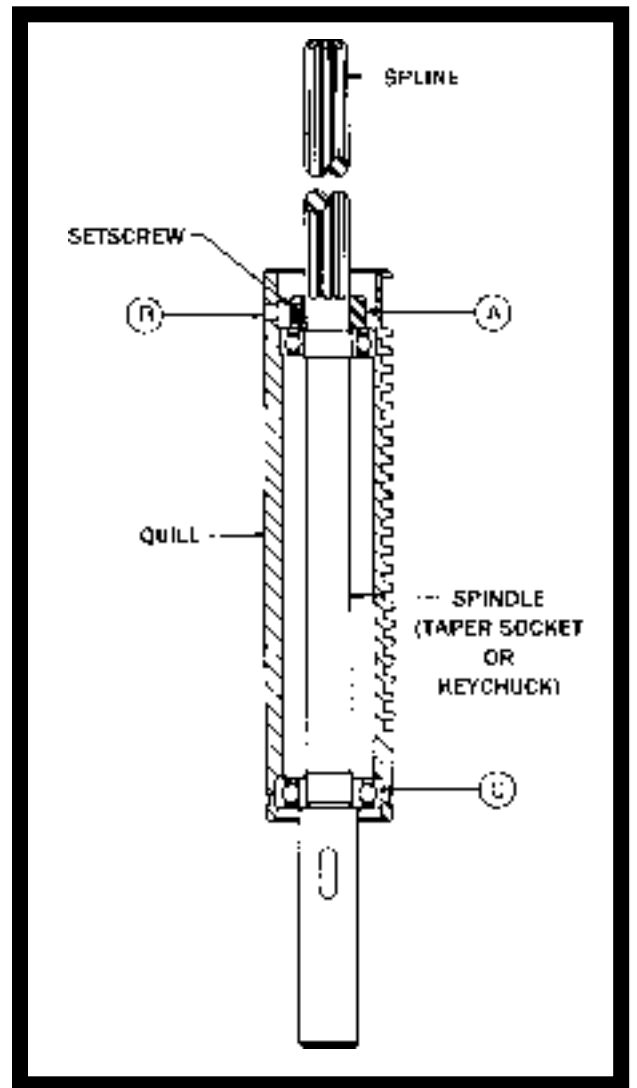


FIGURE 7
QUILL REMOVAL

FIGURE 8
SPINDLE ASSEMBLY



The 1 HP Baldor motor is wound with "Inverter Spike Resistant" magnet wire to give extended motor life when used with inverter drives. The motor is also specially balanced to reduce noise and minimize vibration.

The A.C. inverter does not require any programming; it is pre-programmed from the factory. The buttons on the face of the inverter should NEVER be pushed at any time. Use ONLY the controls on the front of the head assembly.

POWER CONNECTION - ELECTRONIC VARIABLE SPEED

The 1150HD Drill Press will operate on single or three phase, 230V or 460V, depending on the inverter, without any adjustments or programming. For single phase power, connect hot leads to L1 and L2. For three phase power, connect hot leads to L1, L2 and L3 as shown in the wiring diagram on page 39. Remember to always connect the ground lead.

Before connecting to the power source make sure the ON/OFF switch is in the OFF position, and turn the speed dial counterclockwise. If the switch is in the ON position when the power is connected, the inverter will trip out. If this happens, disconnect power, turn switch OFF, wait thirty seconds and then reconnect power.

NOTE: If there is a power outage while operating the 1150HD Drill Press, turn the switch to the OFF position, disconnect power source, wait thirty seconds then reconnect power source and resume normal operation.

FOOT SWITCH OPERATION (Optional - Model 1150HD only)

The optional foot switch is used only for reversing the spindle in tapping operations.

Before using the foot switch, place the control switch in the FWD position.

When performing a tapping operation and the tap needs to be reversed or retracted out of a hole, press the foot switch and hold it down. The spindle will ramp down and immediately reverse direction. Once the tap has completely exited or retracted from the hole, release the foot switch and the spindle will ramp down and immediately return to forward rotation.



DRILL PRESS OPERATIONS

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

CONTROLS (see Figure 10)

1. The spindle (A) in this machine is either a No. 2 Morse Taper or a No. 33 taper type equipped with a chuck. The key type chuck is 1/2" capacity, held to the spindle by the taper and a threaded lock collar.
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. Safety collars (E) are provided to prevent head and/or table from falling when locks are released. Be sure collars are in place and securely locked; one under the head and one under the tilting table. No safety collar is required for the production table as it is rack and pinion controlled.
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. The model 1150HD is provided with an AC-Inverter (H) which is pre-programmed from the factory and requires no changing or adjustment.

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.

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 17-20 for recommendations.) If drill press is the step pulley type, raise door and set drive belt in proper ration 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. 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.

6. Set depth stop for desired hole depth. Fine adjustment is made by turning the fine adjustment collar. Use upper collar to lock stop setting position.

7. If coolant is being used, start flow.

8. Turn machine 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.

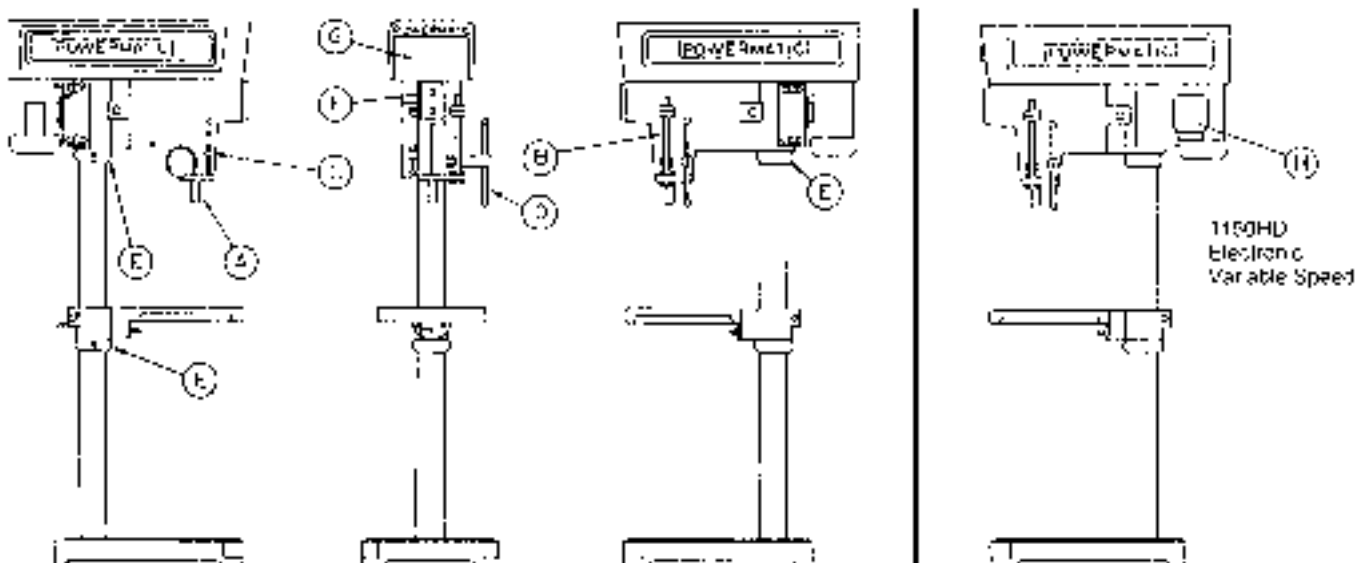


FIGURE 10

TROUBLE SHOOTING

TROUBLE	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 motors 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 section 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. Regrind 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. Bend drill. 2. Bearing play. 3. Drill not seated properly in chucks. 	<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 1A: 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

TABLE 1B: DRILLING FEEDS - SPEED - HORSEPOWER REQUIRED

SIZE OF DRILL	FEED PER REVOLUTION	STEEL CAST IRON					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

**TABLE 2: 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	3500	1600	2200	2100	1700	640	800	1200	1900	2080
1/4	1700	800	1100	1050	850	320	400	600	950	1040
3/8	1200	530	730	700	600	210	270	430	640	700
1/2	880	400	550	520	440	160	190	320	480	520
5/8	700	320	440	410	350	130	150	250	380	410
NOTE: For Carbide Reamers Use 3 Times Chart 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 3: 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: Head Assembly,
1 Spring Keychuck & 1 Spring Taper Socket (1150A & 1150HD)**

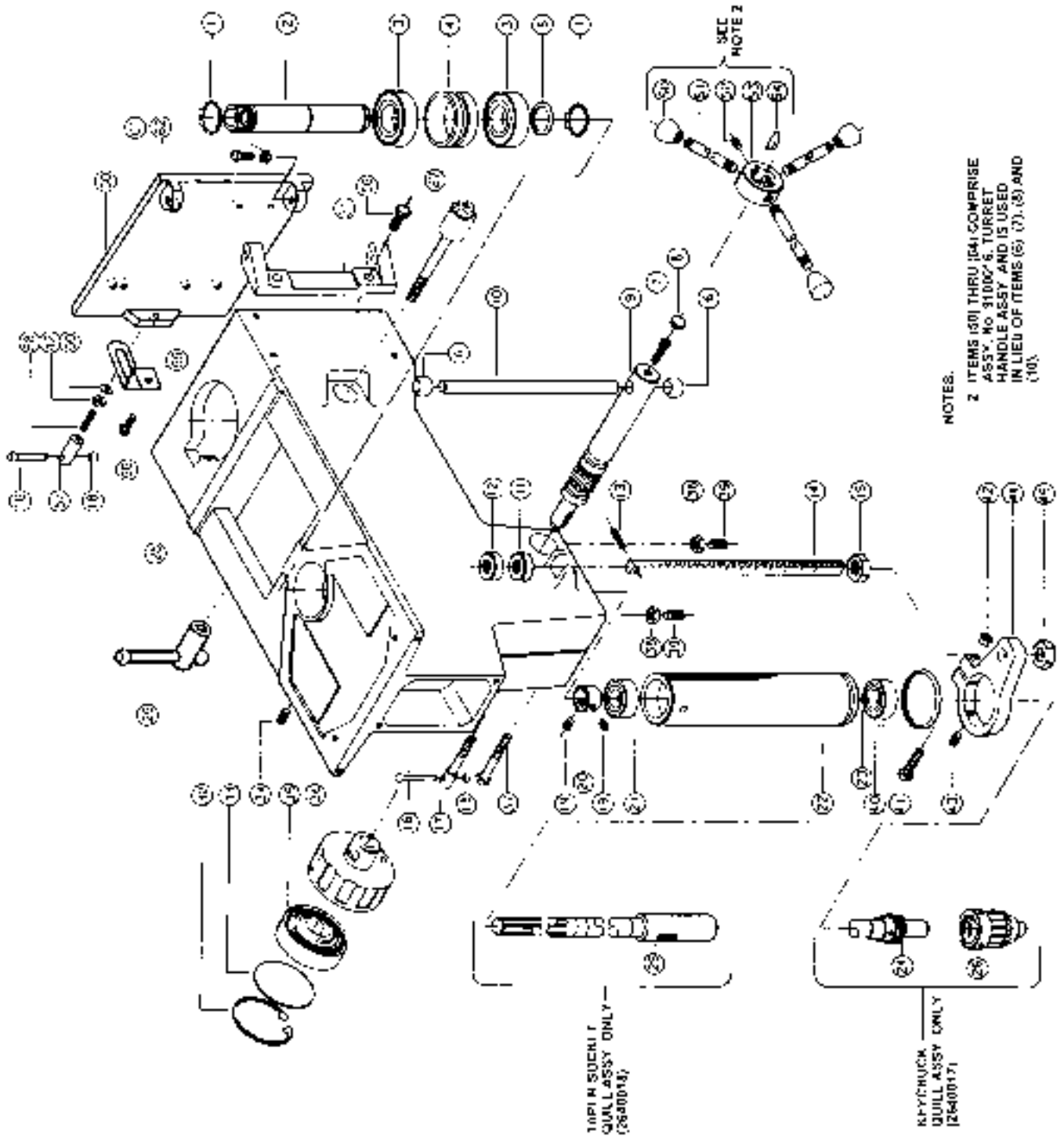
No.	Part No.	Description	Quantity
	2144003	Drive Spline Assembly (Items 1 thru 5)	1
1	6670006	Retaining Ring	2
2	3144006	Internal Drive (Shaft)	1
3	6060014	Bearing	2
4	3737021	Bearing Spacer	1
5	6804003	"O" Ring	1
	2240071	Pinion Gear Assembly, (Items 6 thru 10)	1
6	3406045	Handle Knob	2
7	6714019	Socket Head Cap Screw, 1/4-20 X 5/8	1
8	6430024	Shear-Loc Knob	1
9	3586025	Quill Operating Pinion	1
10	3268053	Handle	1
	2670014	Depth Adjustment Rod Assembly (Items 11 thru 15)	1
11	3526093	Graduated Depth Stop Nut	1
12	3526094	Plain Depth Stop Nut	1
13	6626035	Spring Pin, 3/16 X 5/8	1
14	3670102	Depth Adjust Rod	1
15	3528005	Lock Nut	1
	2695009	Lock Screw Assembly (Items 16 thru 18)	1
16	3268002	Handle	1
17	3695010	Lock Screw	1
18	3406016	Handle Knob	2
	2640017	Keychuck Quill Assembly (Items 19 thru 24)	1
	2640018	Taper Socket Quill Assembly (Items 19 thru 23 & 25)	1
19	6715016	Cup Point Socket Set Screw, 5/16-18 X 5/16	2
20	3096244	Collar	1
21	6060165	Bearing	1
22	3640016	Sliding Quill	1
23	6060009	Bearing	1
24	2749037	Spindle Assembly, (1 Spring Keychuck only)	1
25	3749015	Taper Socket Spindle, (1 Spring Taper Socket Only)	1
26	6118005	Jacobs Chuck, 1/2" W/33 MT	1
27	2440013	Head Sleeve Lock Assembly (Weldment)	1
28	3277028	Drill Press Head	1
29	2440014	Lock Assembly	1
30	3042019	Motor Base	1
31	3063004	Motor Base Bracket	1
32	3661016	Retaining Ring	1
33	3104010	Spring Cover	1
34	6715116	Half Dog Point Socket Set Screw, 5/16-18 X 1/2	1
35	6813026	Spring	1
36	3298288	Single Spring Housing	1
37	6716040	Hex Head Screw, 3/8-16 X 2-1/2	1
38	6518001	Hex Nut, 1/2-13	2
39	6718038	Half Dog Point Socket Set Screw, 1/2-13 X 1-1/4	2
40	6804004	"O" Ring	1
41	6715039	Hex Head Screw, 5/16-18 X 1-3/4	1
42	6515001	Hex Nut, 5/16-18	1
43	6714090	Half Dog Point Socket Set Screw, 1/4-20 X 1/2	1
44	3936013	Quill Yoke	1
45	3528005	Lock Nut	1
	9100016	Turret Handle Assembly, (Items 50 thru 54) (In lieu of standard)	1

PARTS LIST: Head Assembly,
1 Spring Keychuck & 1 Spring Taper Socket (1150A & 1150HD)

No.	Part No.	Description	Quantity
	2268006	Handle Assembly (Items 50 & 51)	1
50	3406206	Phenolic Knob	3
51	3670025	Turret Rod	3
52	6715013	Knurled Cup Point Soc. Set Screw, 5/16-18 X 3/8	1
53	3301003	Turret Hub	1
54	6420001	Woodruff Key	1
55	3064051	Lock Bracket	1
56	6715035	Hex Head Screw, 5/16-18 x 3/4	1
57	3448032	Motor Mount Lock	1
58	6715143	Flat Point Set Screw, 5/16-18 x 1-1/4	1
60	6861201	Flat Washer, 5/16	1
61	6715037	Hex Head Screw, 5/16-18 x 1-1/2	2
62	6515007	Plated Jam Nut, 5/16-18	2

Head Assembly

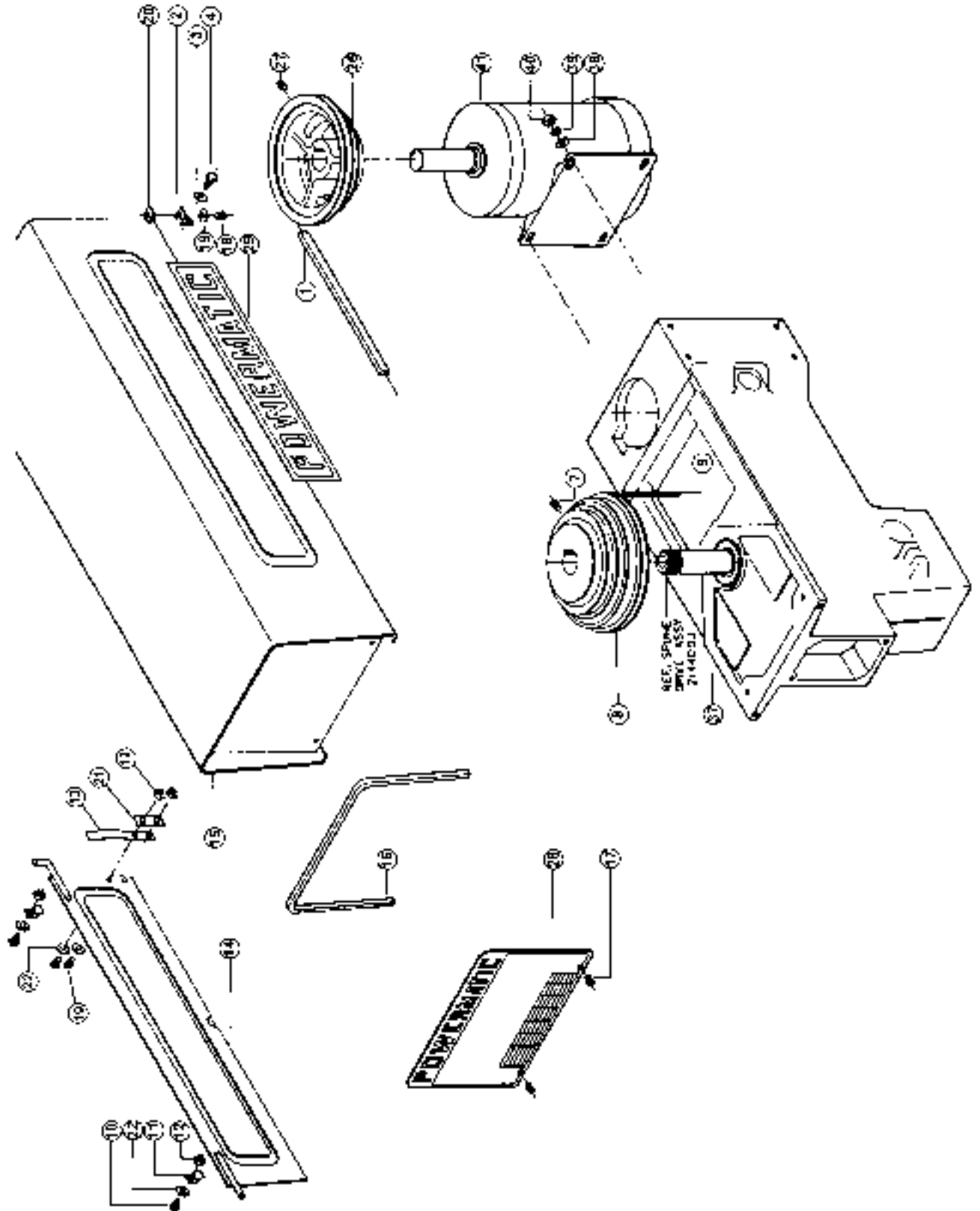
1 Spring Keychuck & 1 Spring Taper Socket (1150A & 1150HD)



PARTS LIST: **Stepcone Assembly** (1150A only)

No.	Part No.	Description	Quantity
	2387004	Stepcone Sheave Kit (Items 1 thru 9)	1
1	6077018	Vee Belt	1
2	3062109	Angle Bracket	2
3	6861101	Flat Washer, 1/4	4
4	6714154	Hex Head Screw, 1/4-20 X 3/8	4
7	6715014	Cup Point Socket Set Screw, 5/16-18 X 1/2	1
8	3718031	Stepcone Sheave	1
9	3387028	Flat Key, 3/16 X 1/4 X 3-5/16	1
	2250141	Stepcone Guard Assembly (Items 10 thru 20)	1
10	6710034	Round Head Screw, 10-24 X 1/2	4
11	6122038	Weckesser Clamp, 3/16-H-FR	2
12	6510001	Hex Nut, 10-24	4
13	3755258	Spring	1
14	2250133	Door Guard Assembly (Weldment)	1
15	2250132	Guard Assembly (Weldment)	1
16	6458002	Rubber Molding	1
17	6714083	Button Head Screw, 1/4-20 X 1/2	2
18	6710003	Truss Head Screw, 10-24 X 1/2	2
19	6860800	Flat Washer, No. 10	2
20	6510009	Speed Nut	2
	2268025	Stepcone Base Lock Handle Assembly (Items 21 thru 25)	1
	2717003	Stepcone Motor Sheave Assembly (Items 26 & 27)	1
21	3595381	Plate (Stiffening)	2
22	6860802	Lock Washer, #10	4
26	3718032	Stepcone Sheave	1
27	6715014	Cup Point Socket Screw, 5/16-18 X 1/2	1
	2388062	Stepcone Plate Kit (Items 28 thru 32)	1
28	3119004	Identification Decal	1
29	3119005	Identification Decal	1
30	3330284	Safety Decal (not shown)	1
31	3312228	Serial Plate (not shown)	1
32	6747000	Drive Screw, No. 4 X 3/16 (not shown)	1
37	3277028	Head	1
38	6861201	Flat Washer, 5/16	4
39	6861200	Lock Washer, 5/16	4
40	6515001	Hex Nut, 5/16-18	4
41	6470600	Electric Motor, 3/4 HP, 1 Ph, 1200 RPM, 115/230V, 56FR, TEFC	1
	6470607	Electric Motor, 3/4 HP, 3 Ph, 1200 RPM, 200V, 56FR, TEFC	1
	6470608	Electric Motor, 3/4 HP, 3 Ph, 1200 RPM, 230/460V, 56FR, TEFC	1
	6470700	Electric Motor, 3/4 HP, 1 Ph, 1800 RPM, 115/230V, 56FR, TEFC	1
	6470702	Electric Motor, 3/4 HP, 3 Ph, 1800 RPM, 575V, 56FR, TEFC	1
	6470707	Electric Motor, 3/4 HP, 3 Ph, 1800 RPM, 230/460V, 56FR, TEFC	1
	6470712	Electric Motor, 3/4 HP, 3 Ph, 1800 RPM, 200V, 56FR, TEFC	1
	6470602	Electric Motor, 3/4 HP, 3 Ph, 1200 RPM, 230/460V, 56FR, ODP, High Reversing ...	1

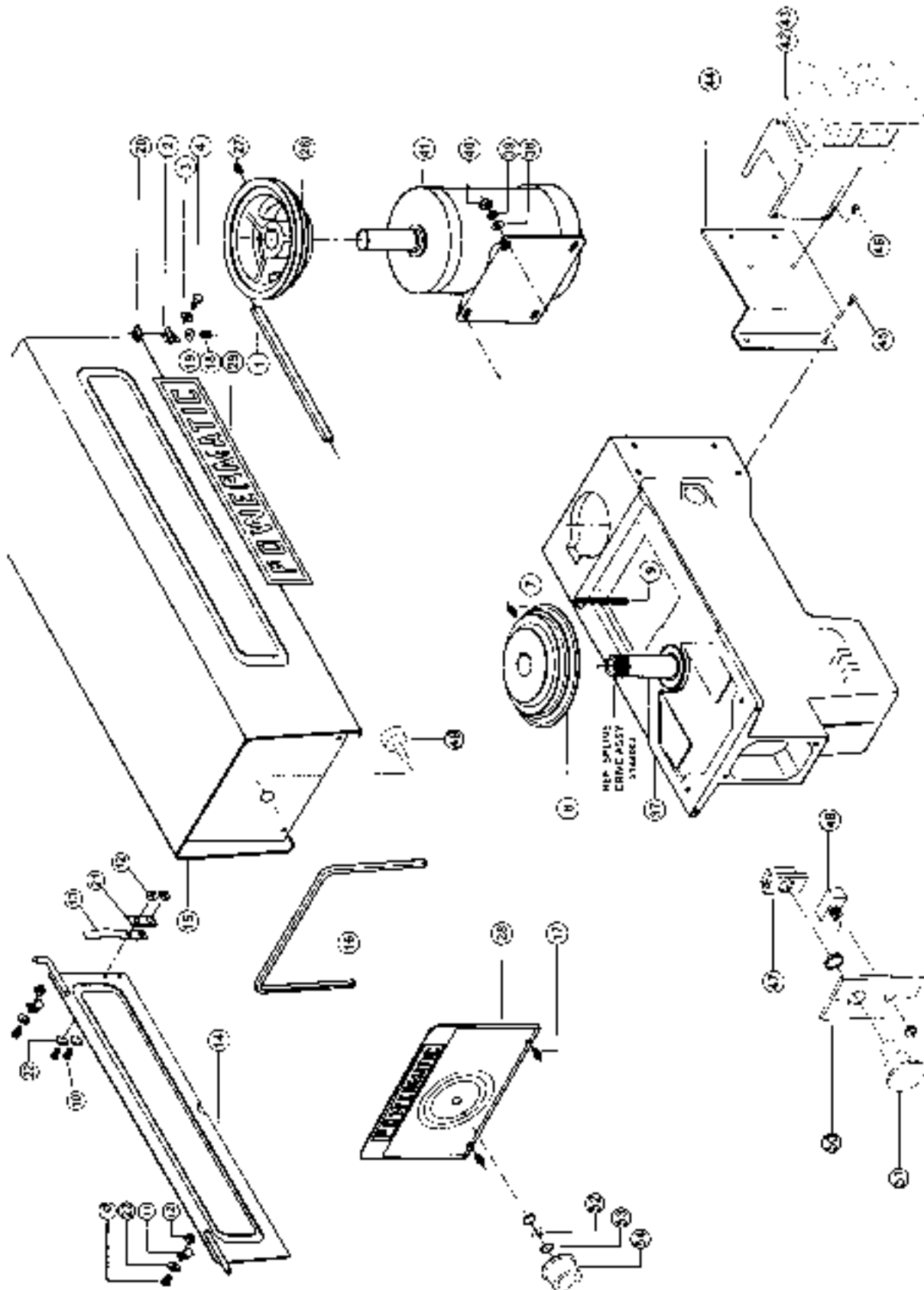
Stepcone Assembly (1150A only)



PARTS LIST: **Electronic Variable Speed Assembly** (1150HD only)

No.	Part No.	Description	Quantity
	2387004	Stepcone Sheave Kit (Items 1 thru 9)	1
1	6077231	Belt	1
2	3062109	Angle Bracket	2
3	6861101	Flat Washer, 1/4	4
4	6714154	Hex Head Screw, 1/4-20 x 3/8	4
7	6715014	Cup Point Socket Set Screw, 5/16-18 x 1/2	1
8	3719192	Stepcone Sheave	1
9	3387028	Flat Key, 3/16 x 1/4 x 3-5/16	1
	2250140	V.S. Guard Assembly (Items 10 thru 20)	1
10	6710034	Round Head Screw, 10-24 x 1/2	4
11	6122038	Weckesser Clamp, 3/16-H-FR	2
12	6510001	Hex Nut, 10-24	4
13	3755258	Spring	1
14	2250133	Door Guard Assembly (Weldment)	1
15	2250131	V.S. Guard Assembly (Weldment)	1
16	6458002	Rubber Molding	1
17	6714083	Button Head Screw, 1/4-20 x 1/2	2
18	6710003	Truss Head Screw, 10-24 x 1/2	2
19	6860800	Flat Washer, No. 10	2
20	6510009	Speed Nut	2
	2268025	Stepcone Base Lock Handle Assembly (Items 21 thru 25)	2
	2717004	Stepcone Motor Sheave Assembly (Items 26 & 27)	2
21	3595381	Plate (Stiffening)	2
22	6860802	Lock Washer, #10	4
26	3719193	Stepcone Sheave	1
27	6715014	Cup Point Socket Set Screw, 5/16-18 x 1/2	1
	2388099	Variable Speed Plate Kit, (Items 28 thru 32)	1
28	3330361	Identification Decal	1
29	3119005	Identification Decal	1
30	3330284	Safety Decal (Not shown)	1
31	3312228	Serial Plate (Not shown)	1
32	6747000	Drive Screw, No. 4 x 3/16 (Not shown)	1
37	3277028	Head	1
38	6861201	Flat Washer, 5/16	4
39	6861200	Lock Washer, 5/16	4
40	6515001	Hex Nut, 5/16-18	4
41	6470901	Electric Motor, 1 HP, 1 or 3 PH, 1200 RPM, 208/230/460V, 145T FR	1
42	6399002	Inverter, 230V	1
43	6399003	Inverter, 460V	1
44	3064723	Inverter Bracket	1
45	6746023	Screw, 1/4	2
46	6760092	Screw, #10	4
47	6083021	Contact Block	1
48	6821492	Fwd/Rev Switch	1
49	6643000	Control Pot	1
50	3578349	Control Panel	1
51	6821491	Push/Pull Switch	1
52	6860800	Washer	1
53	6601000	"O" Ring	2
54	6430047	Control Panel Knob	1

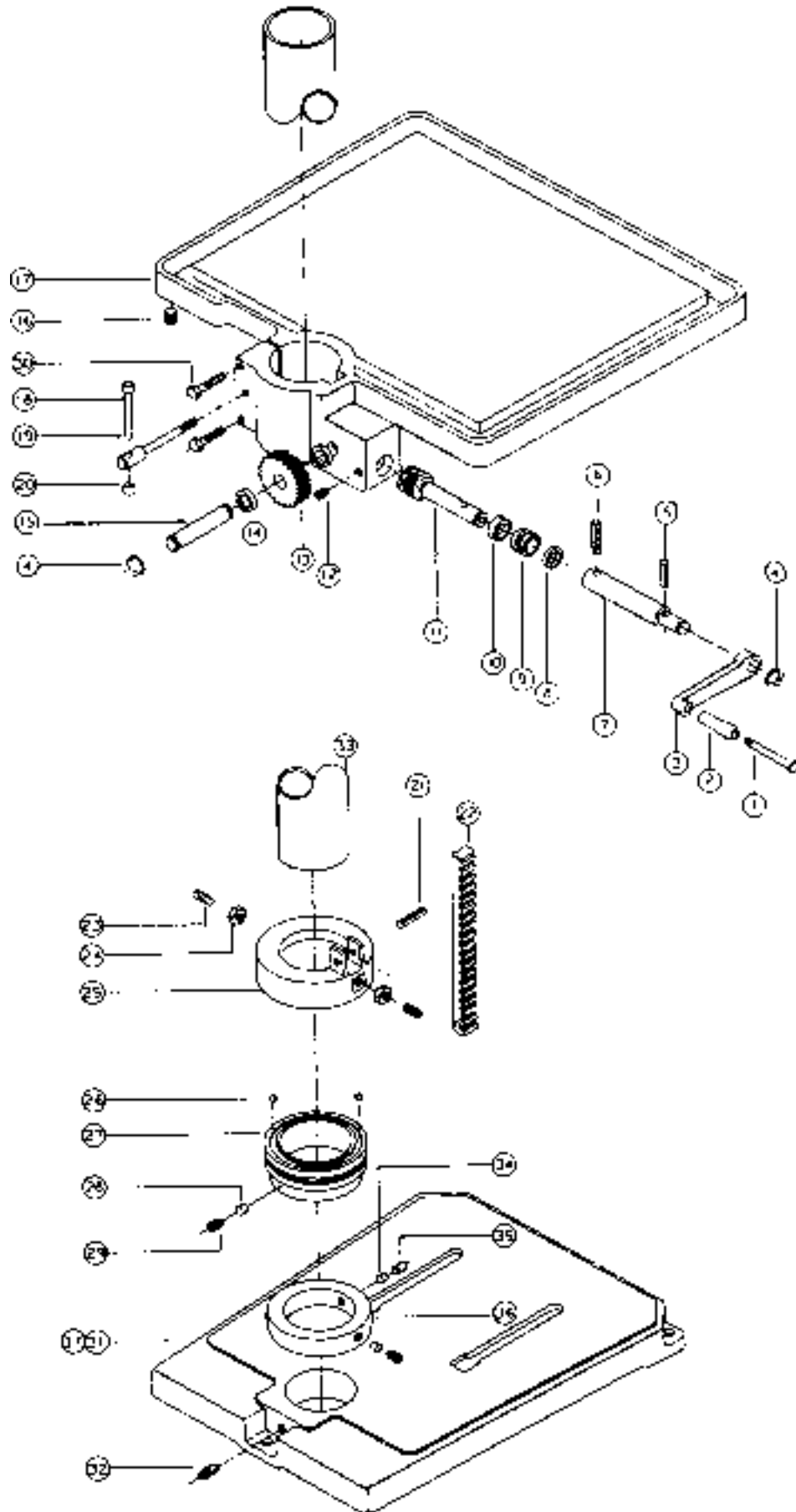
Electronic Variable Speed Assembly (1150HD only)



PARTS LIST: Production Table & Base Assembly (1150A & 1150HD)

No.	Part No.	Description	Quantity
	2797033	Production Table Assembly (Items 1 thru 30)	1
	2797132	Production Table SubAssembly (Items 1 thru 17)	1
	2268013	Table Raising Pinion Handle Assembly (Items 1 thru 3)	1
1	6624006	Flat Head Pin, 3" Long	1
2	3268201	Nylon Machine Handle	1
3	3268005	Table Elevating Handle	1
4	6670008	Retaining Ring (one not shown)	1
5	6626038	Spring Pin, 1/4 X 1	1
6	6626040	Spring Pin, 1/4 X 1-1/4	1
7	3701001	Elevating Handle Shaft	1
8	3838009	Bevel Washer	1
9	2729004	Head Raising Sleeve Assembly	1
10	6064001	Thrust Bearing	1
11	3237332	Worm Gear	1
12	6716099	Half Dog Point Socket Set Screw, 3/8-16 X 5/8	1
13	3237333	Spur Gear	1
14	3743011	Spacer	1
15	3710007	Gear Shaft	1
16	6638004	Pipe Plug, 1/2-14	1
17	3797303	Production Table	1
	2695019	Production Table Lock Screw Assembly (Items 18 thru 20)	1
18	3268002	Handle	1
19	3695070	Lock Screw	1
20	3406016	Knob	1
	2645003	Table Raising Rack Assembly (Items 21 thru 27)	1
21	6626033	Rack Mounting Spring Pin, 3/16 X 2	1
22	3650005	Table Elevating Gear Rack 24" Long	1
23	6715118	Half Dog Point Socket Set Screw, 5/16-18 X 3/4	1
24	6515001	Hex Nut, 5/16-18	2
25	3078026	Thrust Bearing Collar Cap	1
26	6054002	Steel Ball, 3/8" Dia.	30
27	3096042	Thrust Bearing Collar	1
28	3598023	Brass Protector Set Screw Plug, 7/16 X 3/16	1
29	6718055	Cup Point Socket Set Screw, 1/2-13 X 1/2	1
30	6716114	Hex Head Screw, 3/8-16 X 2-3/4 w/ Nylok Insert	2
31	3042121	Drill Press Base	1
32	6718056	Cup Point Socket Set Screw, 1/2-13 X 3/4	1
33	3098209	Drill Press Column	1
34	3598023	Brass Protector Set Screw Plug, 7/16 X 3/16	2
35	6718055	Cup Point Socket Set Screw, 1/2-13 X 1/2	2
36	3096008	Safety Collar	1
37	9100014	Finished Base (in lieu of cast)	1

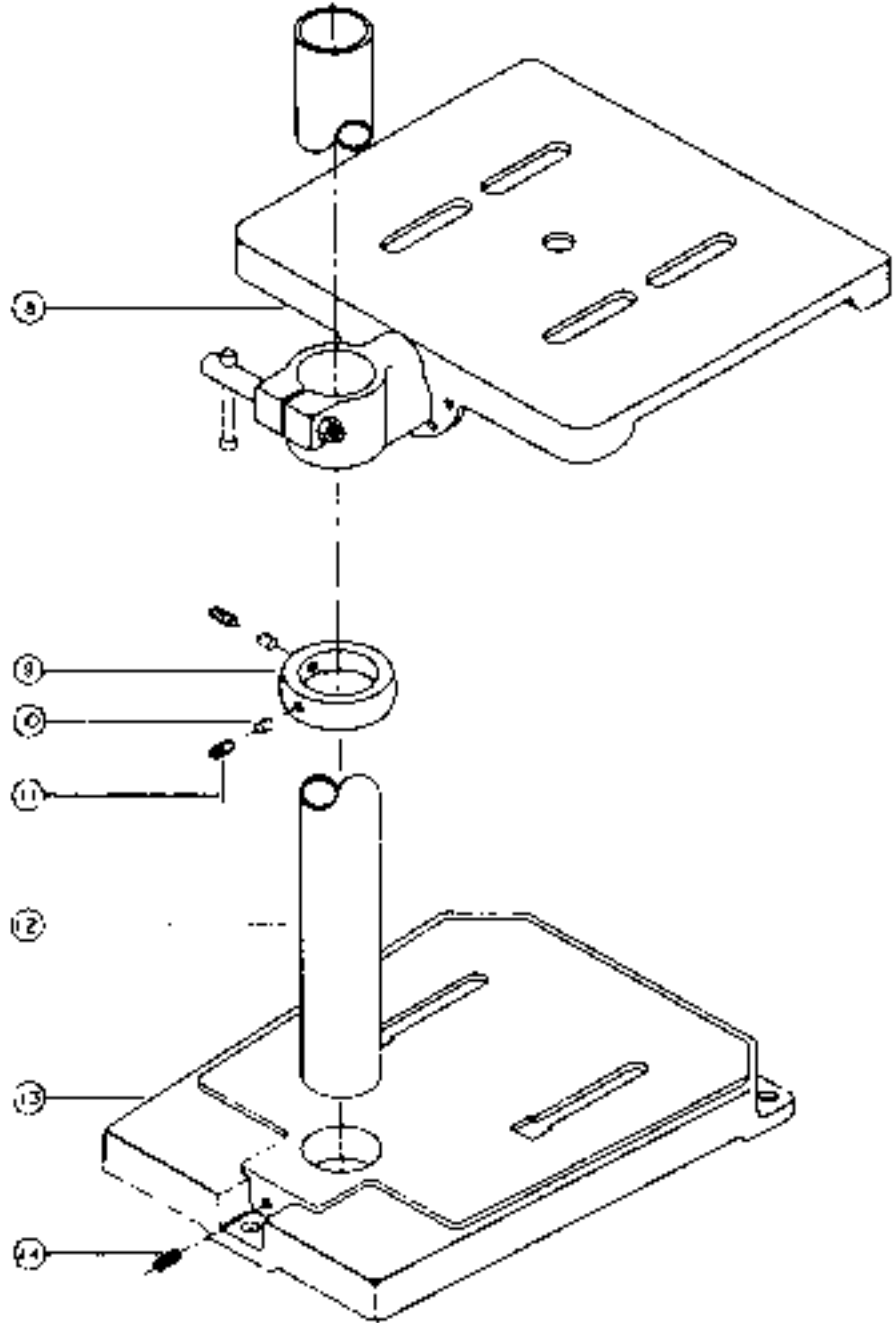
Production Table & Base Assembly (1150A & 1150HD)



PARTS LIST: Tilting Table Assembly (1150A & 1150HD)

No.	Part No.	Description	Quantity
18	2797008	Tilting Table Assembly	1
9	3096008	Safety Collar	1
10	3598023	Brass Protector Set Screw Plug, 7/16 X 3/16	2
11	6718055	Cup Pt. Socket Set Screw, 1/2-13 X 1/2	2
12	3098209	Drill Press Column	1
13	3042121	Drill Press Base	1
14	6718056	Cup Pt. Socket Set Screw, 1/2-13 X 3/4	1

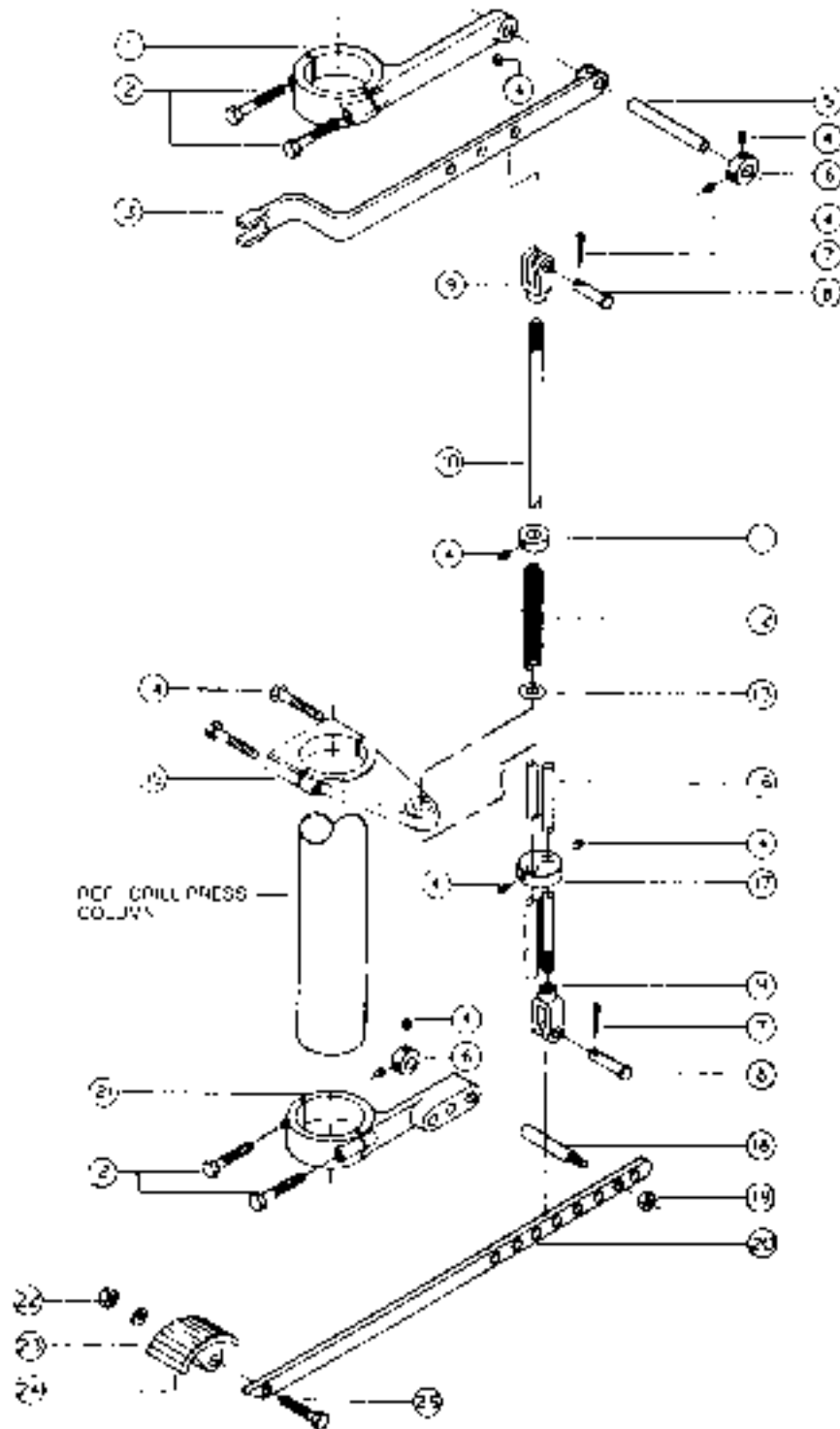
Tilting Table Assembly (1150A & 1150HD)



PARTS LIST: Foot Feed Assembly (Optional - 1150HD only)

No.	Part No.	Description	Quantity
1	3063051	Upper Mounting Bracket.....	1
2	6716037	Hex Head Screw, 3/8-16 x 2.....	4
3	3025029	Upper Feed Arm.....	1
4	6715016	Cup Point Socket Set Screw, 5/16-18 x 5/16.....	7
5	3584004	Upper Feed Arm Pin.....	1
6	3096244	Collar.....	2
7	6622002	Cotter Pin.....	2
8	6621002	Clevis Pin.....	2
9	6126000	Clevis, No. 6 Yoke.....	2
10	3670053	Upper Feed Rod.....	1
11	3096011	Collar.....	1
12	6813056	Spring, 5/8 ID x 7/8 OD x 10 Lg.....	1
13	6861502	Flat Washer, 1/2 OD x 1/8 Thk.....	1
14	6716042	Hex Head Screw, 3/8-16 x 3.....	2
15	3063053	Column Bracket.....	1
16	3670052	Lower Feed Rod.....	2
17	3096014	Coupling Collar.....	1
18	3584002	Foot Lever Pin.....	1
19	6518001	Hex Head Nut, 1/2-13 x 1.....	1
20	3025030	Pedal Arm.....	1
21	3063054	Lower Mounting Bracket.....	1
22	6517001	Hex Head Nut, 7/16-14.....	1
23	6861400	Lock Washer, 7/16.....	1
24	3587002	Foot Operating Pedal.....	1
25	6717016	Hex Head Cap Screw, 7/16-14 x 2.....	1

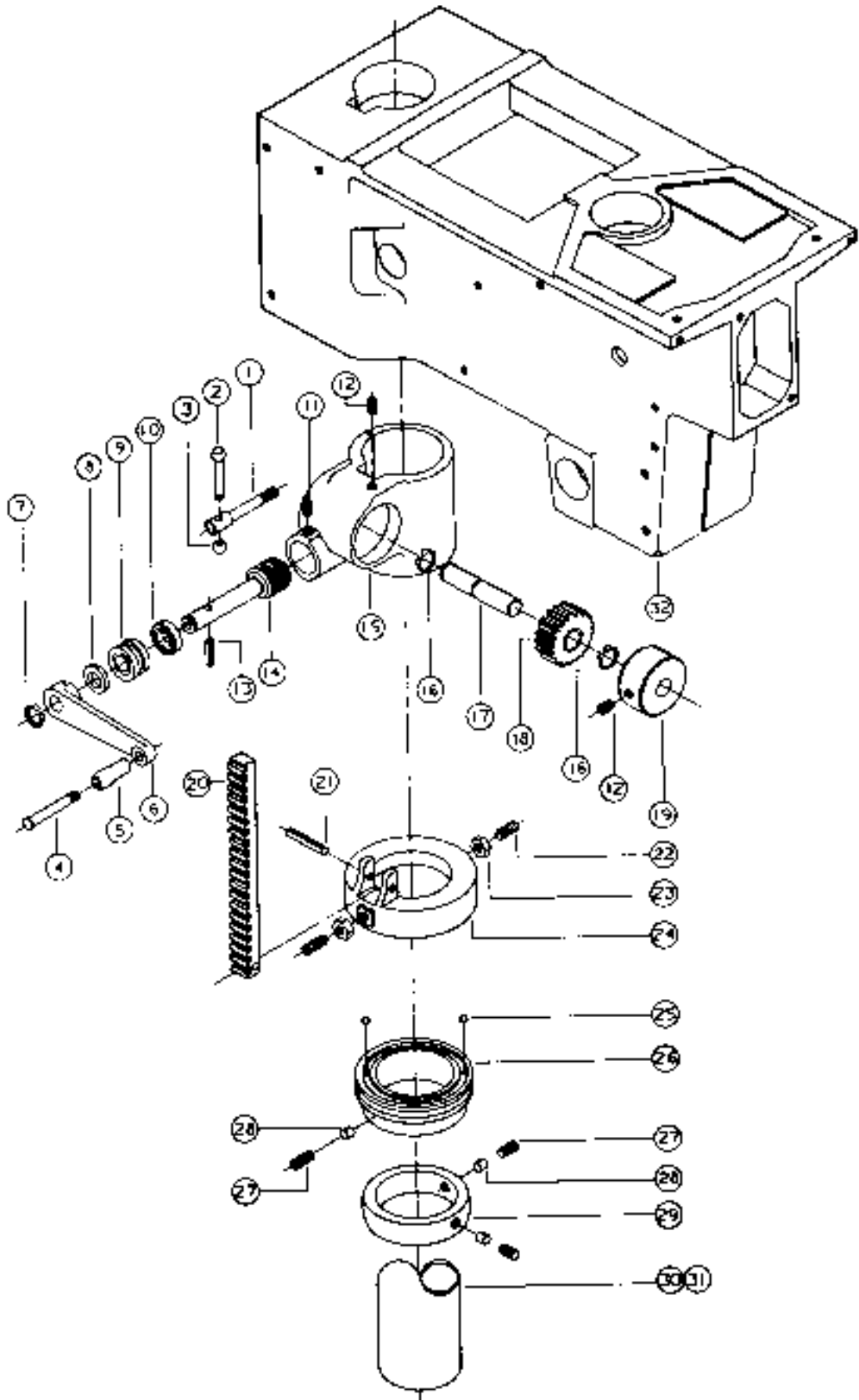
Foot Feed Assembly (Optional - 1150HD only)



PARTS LIST: Head Raising Assembly (Optional - 1150A & 1150HD)

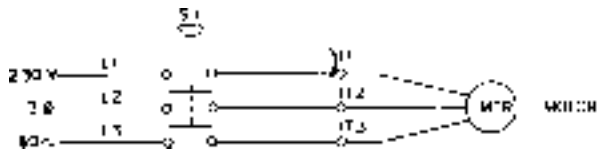
No.	Part No.	Description	Quantity
	2277104	Head Raising Assembly (Items 1 thru 26)	1
	2298034	Gear Elevating Housing Assembly (Items 1 thru 19)	1
	2695009	Lockscrew Assembly (Items 1 thru 3)	1
1	3695010	Lock Screw	1
2	3268002	Handle	1
3	3406016	Handle Knob	1
	2268013	Head Raising Handle Assembly (Items 4 thru 6)	1
4	6624006	Flat Head Pin, No. 3	1
5	3268201	Nylon Machine Handle	1
6	3268005	Table Elevating Handle	1
7	6670008	Retaining Ring	1
8	3838009	Bevel Washer	1
9	2729004	Head Raising Sleeve Assembly	1
10	6064001	Thrust Bearing	1
11	6716099	Half Dog Point Socket Set Screw, 3/8-16 X 5/8	1
12	6716003	Knurl Cup Point Socket Set, 3/8-16 X 3/8	2
13	6626040	Spring Pin, 1/4 X 1-1/4	1
14	3237332	Worm Gear	1
15	3298237	Gearbox Housing	1
16	6670018	Retaining Ring	2
17	3709020	Gear Shaft	1
18	2240072	Head Raising Gear Assembly	1
19	3737023	Gear Spacer	1
20	3650004	Head Raising Rack	1
21	6626033	Rack Mounting Spring Pin 3/16 X 2	1
22	6715118	Half Dog Point Socket Set Screw, 5/16-18 X 3/4	2
23	6515007	Hex Jam Nut, 5/16-18	2
24	3078026	Thrust Bearing Collar Cap	1
25	6054002	Steel Ball, 3/8" dia	30
26	3096042	Thrust Bearing Collar	1
27	6718055	Cup Point Socket Set Screw, 1/2-13 X 1/2	3
28	3598023	Brass Set Screw Protector Plug, 7/16 X 3/16	3
29	3096008	Safety Collar	1
30	3098209	Drill Press Column (Floor Model)	1
31	3098208	Drill Press Column (Bench Model)	1
32	3277028	Drill Press Head	1

Head Raising Assembly (Optional - 1150A & 1150HD)



ELECTRICAL SCHEMATIC (1150A only)

MANUAL

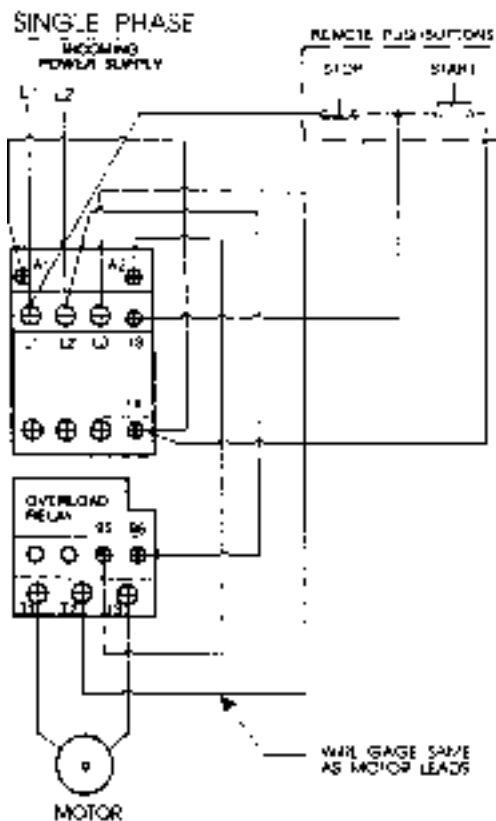


REF	QTY	POWERMATIC NO.	MFG DESCRIPTION
S1	1	(S2) 682135	SWITCH, FURNAS 128434P
		(C. 0) 682114	SWITCH, FURNAS 127424P

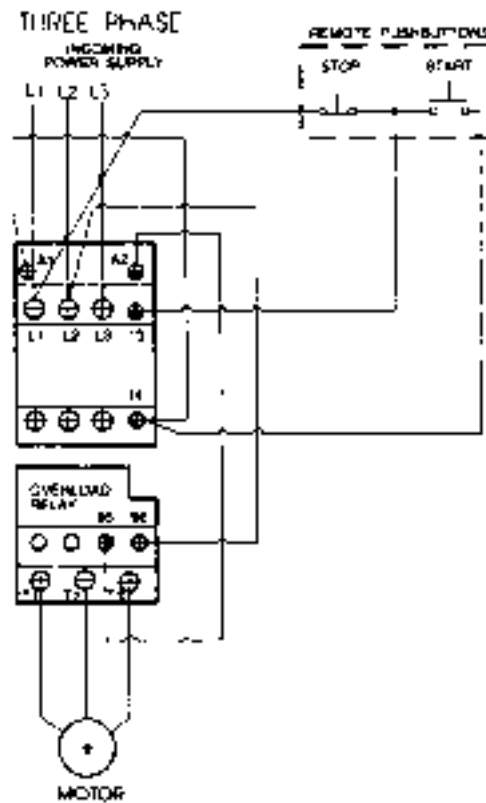
IEC CONTROL, MAGNETIC STARTER

Model 1150A only

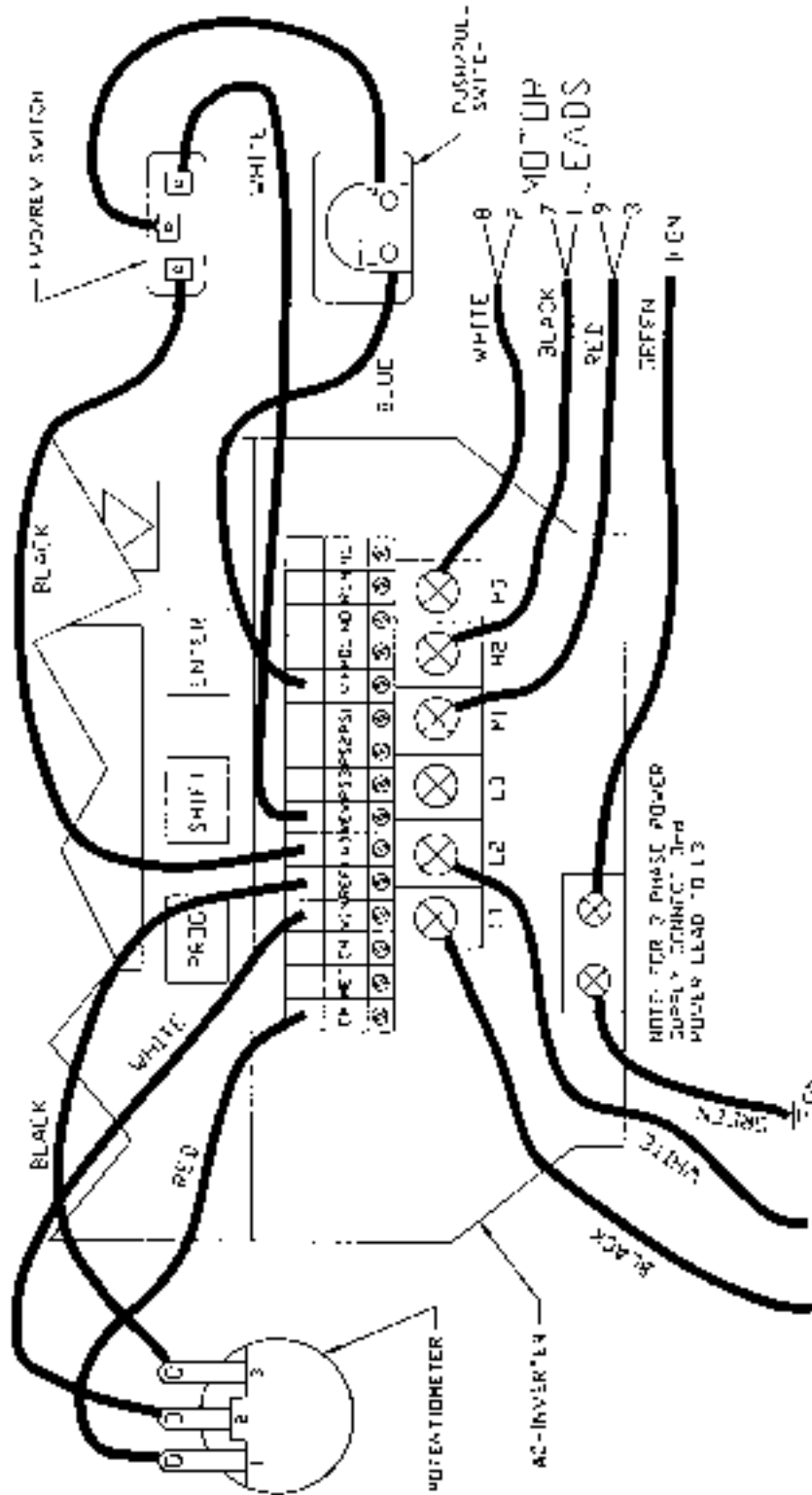
SINGLE PHASE



THREE PHASE



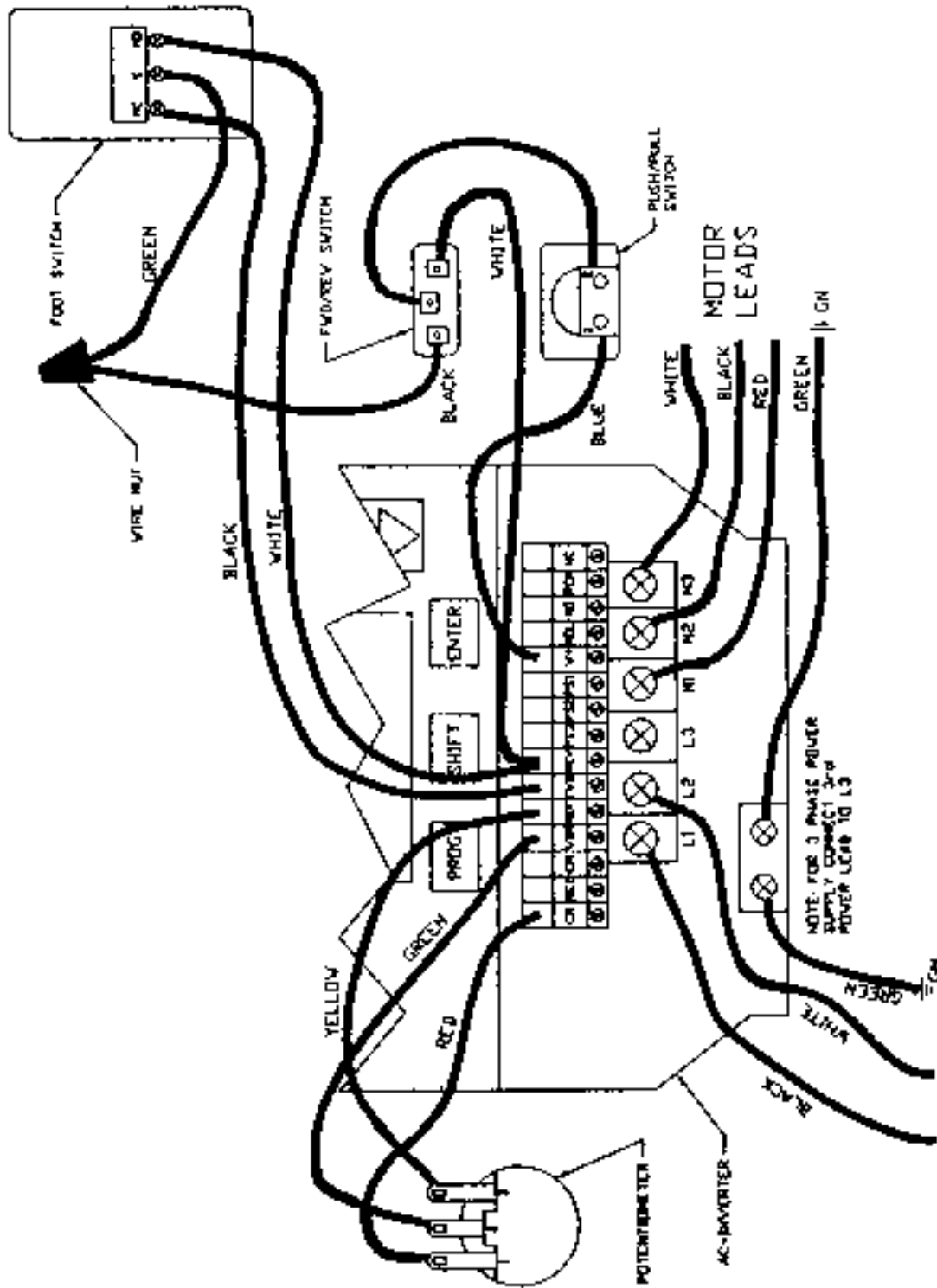
ELECTRICAL SCHEMATIC (1150HD only)



NOTE THE WIRING DIAGRAM FOR 1150HD AND 1150HD ARE IDENTICAL THE 200V MODELS (1150HD AND 1150HD) HAVE A DIFFERENT AC-INVERTER THAN THE 400V MODEL'S (1150HD AND 1150HD) AND ARE NOT INTERCHANGEABLE AND SHOULD BE WIRED ACCORDINGLY.

ELECTRICAL SCHEMATIC (1150HD only)

When used with Reversing Foot Switch



NOTE: THE WIRING DIAGRAMS FOR 1150HD AND 1200HD ARE IDENTICAL. THE 220V MODELS (1150HD AND 1200HD) HAVE A DIFFERENT AC-INVERTER THAN THE 460V MODELS (1150HD AND 1200HD) AND ARE NOT INTERCHANGEABLE AND SHOULD BE WIRED ACCORDINGLY.

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 stock number of the part(s) required from your parts manual will also expedite your order.

Phone No.: (800) 248-0144

Fax No. (800) 274-6840

If you are calling from Canada, please call 800-238-4746

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