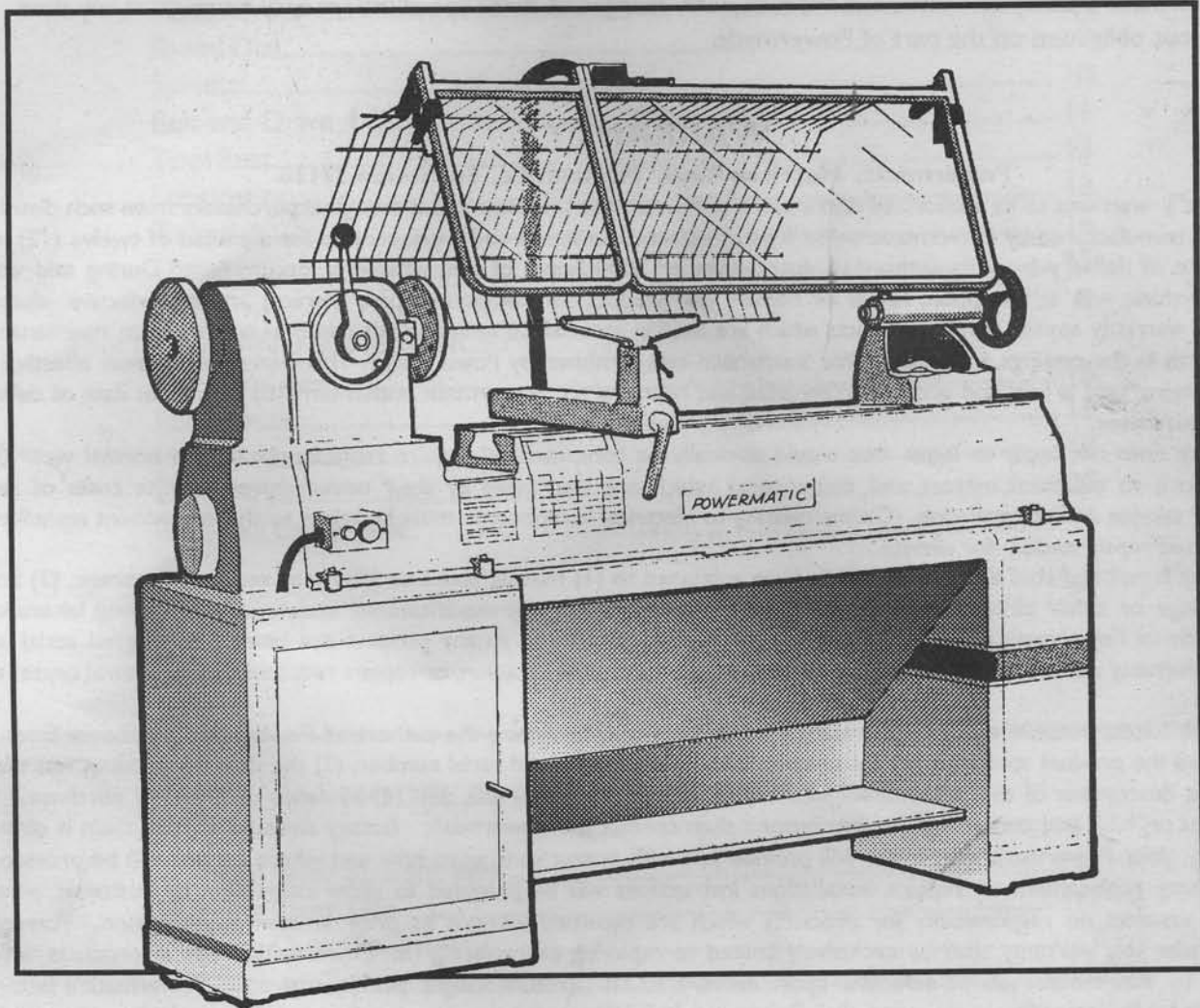


Model 90

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# 12" LATHE

## MAINTENANCE INSTRUCTIONS AND PARTS LIST



Better By Design<sup>™</sup>

**POWERMATIC<sup>®</sup>** <sup>®</sup>

McMINNVILLE, TENNESSEE 37110 ☐ AC 615 / 473-5551

EDP# 0460170

## FOREWORD

This manual has been prepared for the owner and those responsible for the operation of a Powermatic  
**Model 90, 12 inch Lathe.**

It's purpose, aside from machine 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 machine.

In order to obtain maximum life and efficiency from your Powermatic lathe, and to aid in operating and maintaining the lathe with safety, read this manual thoroughly and follow all instructions carefully.

The specifications put forth in this manual were in effect at the time of publication. However, owing to Powermatic's policy of continuous improvement, changes to these specifications may be made at any time without obligation on the part of Powermatic.

## WARRANTY

**Powermatic, Morrison Road, McMinnville, Tennessee 37110**

("Powermatic") warrants to its authorized distributors of Powermatic products and the original purchasers from such distributors, all products manufactured 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**

## TABLE OF CONTENTS \ SPECIFICATIONS

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SPECIFICATIONS.....	3
SAFETY INSTRUCTIONS.....	4
DECAL INSTRUCTIONS.....	6
INSTALLATION, ADJUSTMENTS AND MAINTENANCE.....	7
Receiving.....	7
Installation.....	7
Speed Chart.....	7
General.....	8
Motor.....	8
Motor Switch.....	8
Speed Dial.....	9
Spindle.....	10
Belt and Drive Adjustment.....	11
Tool Rest.....	13
Lubrication.....	13
Tailstock.....	14
Electrical.....	15
PARTS LIST AND SCHEMATICS	
Stand and Bed.....	16
Face Plates.....	16
Head Area.....	18
Drive Area.....	20
Optional Equipment.....	21
TRUBLE-SHOOTING.....	22

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### MODEL 90 LATHE SPECIFICATIONS

Swing Over Straight Bed.....	12"
Swing Over Gap.....	17"
Swing Over Tool Rest.....	8"
Width of Gap.....	5-1/4"
Width of Gap from Face Plate.....	4"
Distance Between Centers.....	38"
Height of Spindle Centering to Floor.....	42-1/2"
Length of Standard Bed.....	60"
Overall Length, Width and Height.....	67" L. x 16" W. x 46-1/2" H.
Motor.....	1 HP
Speed Range.....	Standard 320 - 2100 Optional Low Range 215 - 1375 Optional High Range 460 - 3000
Shipping Weight Crated.....	700 lbs.

## WOOD LATHE SAFETY INSTRUCTIONS

---

1. **READ, UNDERSTAND AND FOLLOW** the safety and operating instructions found in this manual. Know the limitations and hazards associated with this wood lathe. A safety decal is placed on each machine as a reminder of basic safety practice.
2. **GROUNDING OF THE LATHE:** 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 Electrical Code.
3. **EYE SAFETY:** Wear an approved safety shield, goggles, or glasses to protect the eyes when operating the wood lathe.
4. **PERSONAL PROTECTION:** Before operating the machine, remove tie, rings, watches, and other jewelry, and roll up sleeves above the elbows. Remove all loose clothing and confine long hair. Protective type foot wear should be worn and hearing protectors should be worn 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 scrap material, saw dust, oil or grease to minimize the danger of tripping or slipping. Powermatic recommends the use of anti-skid floor strips on the floor area where the operator normally stands. Provide ample unobstructed floor area around the machine. Mark off the machine area. Make certain that the work area is well lighted and that a proper exhaust system is used to minimize dust.
6. **GUARDS:** Keep the machine guards in place, make certain they are operable, and use them at all times. **DO NOT** operate the machine with guards off.
7. **DON'T OVERREACH:** Maintain a balanced stance and keep your body under control at all times. Do not overreach or use excessive force to perform any operation.
8. **MAINTAIN TOOLS IN TOP CONDITION:** Keep tools sharp and clean for safe and best performance. Dull tools can grab in the work and be jerked from the operator's hands causing serious injury.
9. **CHECK THE CONDITION OF THE STOCK TO BE TURNED:** Be sure it is free of knots, warpage, checked ends, improperly made or cured glue joints and other conditions which can cause it to be thrown out of the lathe.
10. **SECURELY FASTEN SPUR CENTERS** to the material being used.
11. **CHECK CENTERS AND CENTER SOCKETS** in the headstock and tailstock to be sure they are free of dirt or rust and oil lightly before inserting centers.
12. **TEST EACH SET-UP** by revolving the work by hand to insure it clears the work rest and bed and check setup at the lowest speed before increasing it to the operating speed.
13. **USE THE CORRECT CUTTING TOOL** for the operation to be performed and keep all tools in a sharpened condition.
14. **USE LOW SPEEDS FOR ROUGHING AND FOR LONG OR LARGE DIAMETER WORK:** If vibration occurs, stop the machine and correct the cause. See Table 1, page 7 for speed recommendations.
15. **WHEN SANDING, REMOVE THE TOOL REST FROM THE MACHINE**, apply light pressure, and use a slow speed to avoid heat build up.

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**16. WHEN TURNING LARGE DIAMETER PIECES, SUCH AS BOWLS, ALWAYS OPERATE THE LATHE AT LOW SPEEDS.** See Table I for speed recommendations.

**17. NEVER USE DULL TURNING TOOLS** - sharp tools help prevent the tool from grabbing in the work and being jerked from the operator's hands.

**18. TAKE MEASUREMENTS ON THE PART ONLY WITH THE SPINDLE STOPPED.**

**19. DO NOT ATTEMPT TO ENGAGE THE SPINDLE LOCK PIN** until the spindle has stopped. If leaving the machine area, turn it off and wait until the spindle stops before departing.

**20. 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.

**21. MAKE NO ADJUSTMENTS EXCEPT SPEED CHANGE WITH THE SPINDLE ROTATING** and always disconnect machine from power source when performing maintenance to avoid accidental starting or electrical shock.

**22. BOLT THE LATHE TO THE FLOOR** through the lag holes provided to avoid any tendency of the lathe to tip or shift during turning operations.

**23. PROVIDE ADEQUATE SURROUNDING WORK SPACE** and overhead non-glare lighting. Powermatic recommends the use of non-skid floor strips on the floor area where the operator normally stands and marking off a work area for each machine.

**24. DON'T STAND IN LINE WITH ANY LARGE DIAMETER PART BEING TURNED OR ALLOW ANYONE ELSE TO DO SO.**

**25. WHEN STOPPING THE LATHE**, never grab the part or face plate to slow it down. Let the work coast to a stop.

**26. USE ONLY POWERMATIC** or factory authorized replacement parts and accessories, otherwise the warranty and guarantee are null and void.

**27. DO NOT USE THIS POWERMATIC WOOD LATHE FOR OTHER THAN ITS INTENDED USE. IF USED FOR OTHER PURPOSES, POWERMATIC DISCLAIMS ANY REAL OR IMPLIED WARRANTY AND HOLDS ITSELF HARMLESS FROM ANY INJURY THAT MAY RESULT FROM THAT USE.**

**WARNING: DO NOT EQUIP OR USE THE MODEL 90 MACHINE WITH A MOTOR LARGER THAN 1 HORSEPOWER AT 1800 RPM. USE OF A LARGER OR HIGHER SPEED MOTOR VOIDS THE WARRANTY AND POWERMATIC HOLDS ITSELF HARMLESS FROM ANY INJURY THAT MAY RESULT.**

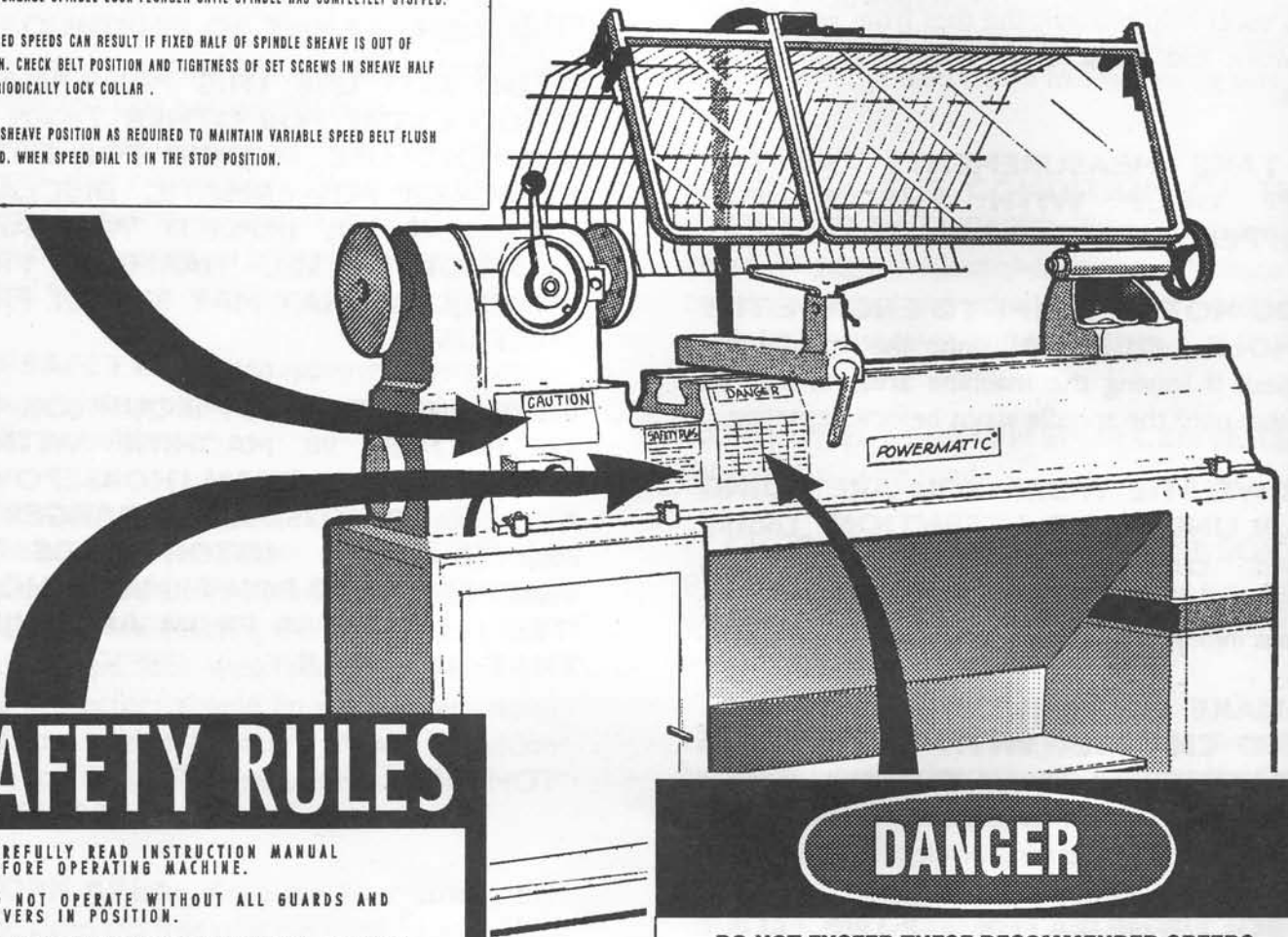
# CAUTION

TO START MACHINE, DEPRESS AND HOLD START BUTTON. WITH START BUTTON IN DEPRESSED POSITION, TURN SPEED CAM HANDLE SLOWLY TO START POSITION. CHANGE SPEEDS WITH MOTOR RUNNING. IF MOTOR FAILS TO START, OR IF POWER IS REMOVED WHILE RUNNING, RETURN DIAL TO STOP POSITION BY APPLYING HAND PRESSURE TO CONTROL HANDLE WHILE ROTATING SPINDLE BY HAND.

DO NOT ENGAGE SPINDLE LOCK PLUNGER UNTIL SPINDLE HAS COMPLETELY STOPPED.

INCREASED SPEEDS CAN RESULT IF FIXED HALF OF SPINDLE SHEAVE IS OUT OF POSITION. CHECK BELT POSITION AND TIGHTNESS OF SET SCREWS IN SHEAVE HALF AND PERIODICALLY LOCK COLLAR.

ADJUST SHEAVE POSITION AS REQUIRED TO MAINTAIN VARIABLE SPEED BELT FLUSH WITH O.D. WHEN SPEED DIAL IS IN THE STOP POSITION.



# 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.

# DANGER

**DO NOT EXCEED THESE RECOMMENDED SPEEDS. SERIOUS INJURY CAN RESULT IF PARTS BEING TURNED ARE THROWN FROM THE LATHE.**

DIA. OF WORK	ROUGHING R. P. M.	GEN. CUTTING R. P. M.	FINISHING R. P. M.
UNDER 2	1520	3000	3000
2 to 4	760	1600	2480
4 to 6	510	1080	1650
6 to 8	380	810	1240
8 to 10	300	650	1000
10 to 12	255	540	830
12 to 14	220	460	710
14 to 16	190	400	620
16 to 20	175	325	500
20 to 24	175	260	400

## INSTALLATION, ADJUSTMENTS AND MAINTENANCE

### Receiving:

Remove the lathe from the shipping container and check for damage. Report any damage to your distributor immediately. Accessories are packaged in a separate carton which will be on the shelf of the machine stand. Clean protective coating from the bed, spindles, work rest and face plate. Read the instruction manual thoroughly for assembly, maintenance, operation and safety instructions.

### Installation:

Mount the lathe on a solid foundation and lag to the floor through the four holes provided in the machine base. Connect the machine to its power source and be sure the machine frame is properly grounded. Check to insure that the rotation of the spindle is counterclockwise facing the spindle from the tailstock end. Correct if required. Remove the belt cover on the left-hand end of the headstock. Check the belt position. In STOP position, it should be flush with the O.D. of the spindle mounted variable speed pulley. If it is not, readjust as indicated in the maintenance instructions.

To check the motor or jackshaft position and belt tension, grasp both sides of the variable speed belt midway between the top and bottom variable speed pulleys and squeeze together. If the two sides touch, the motor or jackshaft must be lowered to provide the correct speed range. Disconnect the machine from its power source and readjust motor or jackshaft as indicated in the maintenance instructions.

To start the machine, move the speed dial slowly to START position. On current models with magnetic controls, the START button on the control station on the front of the bed must be held depressed until the drive motor starts. Run the lathe through its complete speed range to check for proper operation. If excessive noise or vibration occurs, contact your distributor. Do not use the machine until all problems have been corrected. Reinstall the belt guard.

**WOOD TURNING LATHE SPEEDS**

DIA. OF WORK	ROUGHING R. P. M.	GEN. CUTTING R. P. M.	FINISHING R. P. M.
Under 2"	1520	3000	3000
2 to 4"	760	1600	2480
4 to 6"	510	1080	1650
6 to 8"	380	810	1240
8 to 10"	300	650	1000
10 to 12"	255	540	830
12 to 14"	220	460	710
14 to 16"	190	400	620

### General:

Maintenance on the 90 lathe should be performed at periodic intervals to insure that the machine is in proper working order, that all fasteners are tight, and the machine is in adjustment. The more use the machine is subjected to, the more often it should be inspected and maintained. Inspection and maintenance should be performed at least twice a year. **CAUTION:** To prevent accidental starting or electrical shock, disconnect machine from power source before performing any maintenance.

### Motor:

The lathe is equipped with a 1 HP, 1800 RPM motor, single or 3 phase mounted (depending on the model, mounted to the lathe bed or to a motor mounting bracket). To inspect or service the motor on bed-mounted models, remove the belt guard at the left end of the machine. On bracket-mounted models, open the cabinet door for access to the motor. Inspect the motor for sawdust accumulation in the fan area and vacuum out the motor and surrounding area.

The position of the motor on bed-mounted models is important to the adjustment of the speed range of the lathe. If the motor is removed or replaced, readjust its position as indicated in the belt adjustment section (page 12). The correct rotational direction of the motor is clockwise facing the shaft end of the motor. When viewing the lathe spindle from the tailstock end, it will turn in a counterclockwise direction.

### Motor Switch:

The motor switch is mounted inside the headstock and is operated through a switch arm and a cam section of the variable speed dial on the front of the lathe. To service or replace the switch, remove the variable speed dial by removing the screw (A), Fig 1 in its center. Remove the two screws (B), Fig. 2

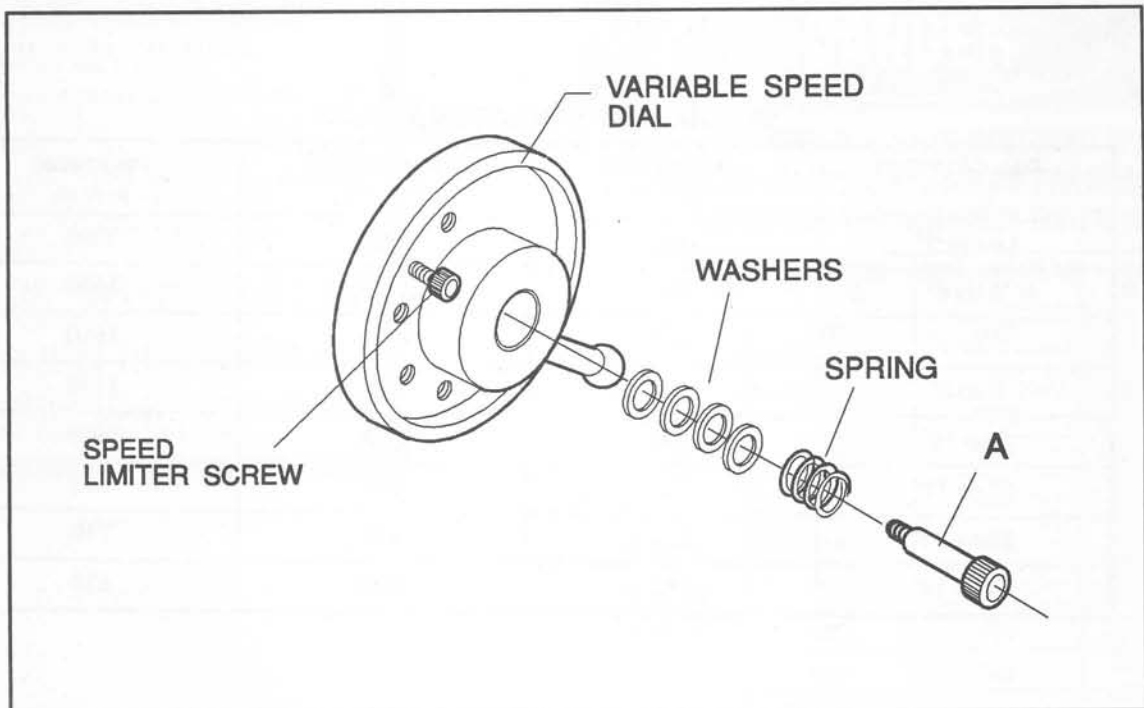


FIG. 1



It may be necessary on older models with bed-mounted motors to remove the motor for easier access to the switch. To drop the motor on these models, remove the variable speed belt, (see section on belt and drive adjustment), and remove the four mounting screws at the back of the bed. On reinstalling the motor, refer to the section on belt and drive adjustment (page ).

### Speed Dial:

To remove the speed dial, unscrew and remove the central bolt (A), Fig. 2. To replace the speed dial, loop a piece of string over the switch arm as shown and pull on the string to hold down the switch arm. Holding the dial at the 1000 RPM speed position, install the dial in the headstock cavity being careful not to catch the switch arm and compressing the interlocking pin spring. With the cam in position, remove the string, screw in and lock down tight the central bolt with its spring and washers.

**NOTE:** The variable speed dial comes factory equipped with a speed limiter screw which can be placed in a series of tapped holes located in the face of the dial. This screw regulates the maximum position to which the dial can be rotated. It provides the safety of selecting a pre-set maximum RPM position for each operation. **Be sure this stop screw is in the dial and if it is not, obtain a replacement from Powermatic.**

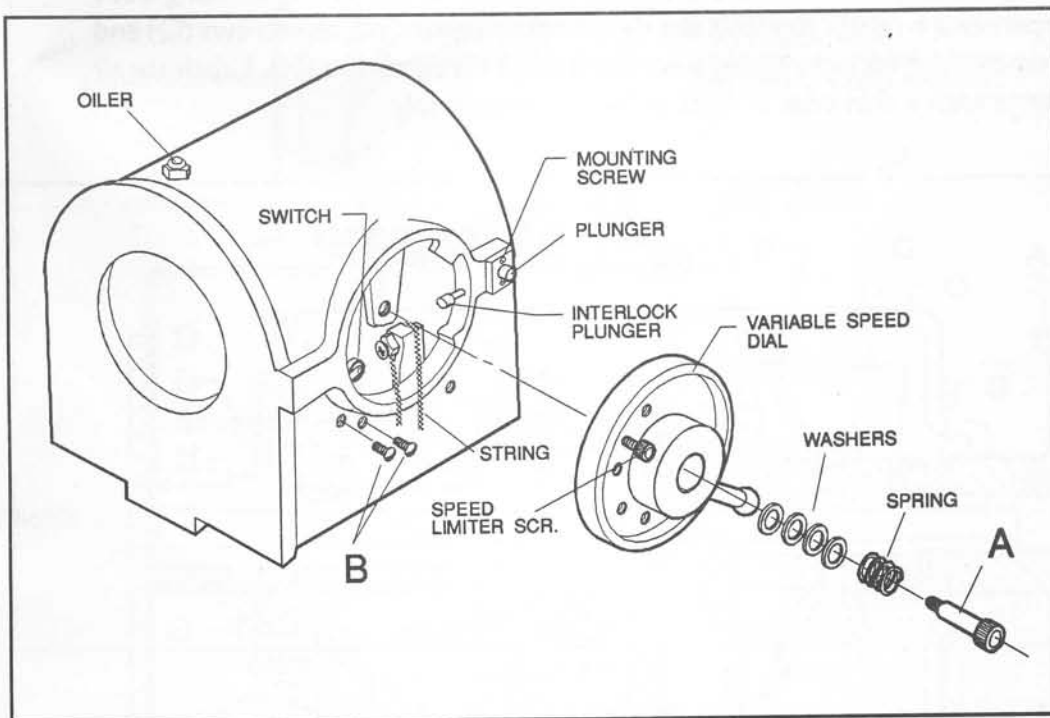


FIG. 2

### Spindle:

To remove the spindle, first remove the face plate (A), Fig. 3, by locking the spindle with the locking pin (B), and removing the face plate (left-hand threads). Remove the guard, drive belt and speed dial. Loosen the two set screws on the locking collar (C) on old models or soc. hd. cap screw on current models, and unscrew the collar (left-hand threads). Loosen the set screw (O) in the outer variable speed sheave (D) and slip the sheave off the spindle.

**NOTE: It may be necessary to drive the sheave forward and file the set screw burr off the spindle in order to remove the outer sheave.**

Use a screw driver to apply pressure between the inner sheave (E) and headstock and slide out inner sheave together with bearings (F) and sheave key (P). Unscrew the two hex. hd. screws (G), remove retaining cap (H) and gently bump spindle out (toward tailstock) with a block of wood. Replace in reverse order.

To remove the two sleeves (N, M) after the spindle has been removed, first remove plunger (B) by loosening the two mounting screws and removing the plunger cap (I). Care should be taken to see that the lock pin (J) and spring do not drop down into the headstock. Loosen set screw (K) on older models by inserting a 5/32 Allen wrench through slot in sleeve, turn about one revolution and remove the variable speed shifting pin assembly (L).

On models shipped **after November, 1972**, the variable speed shifting pin assembly screws into the sliding sleeve and can be removed using a 3/4 open-end wrench. Remove the sleeve retaining hex. hd. cap screws (Q) and remove the variable speed sleeve (N) and bearing sleeve (M). Lubricate all parts with a thin coat of light oil before reassembly.

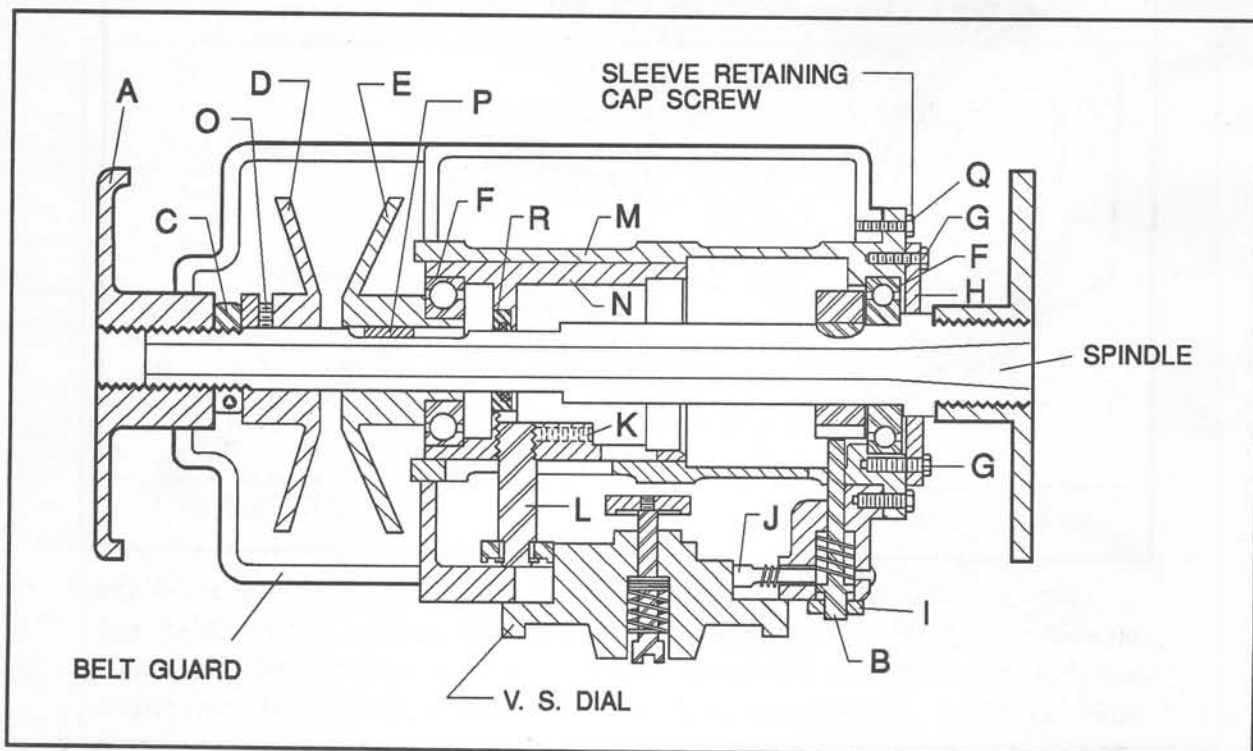
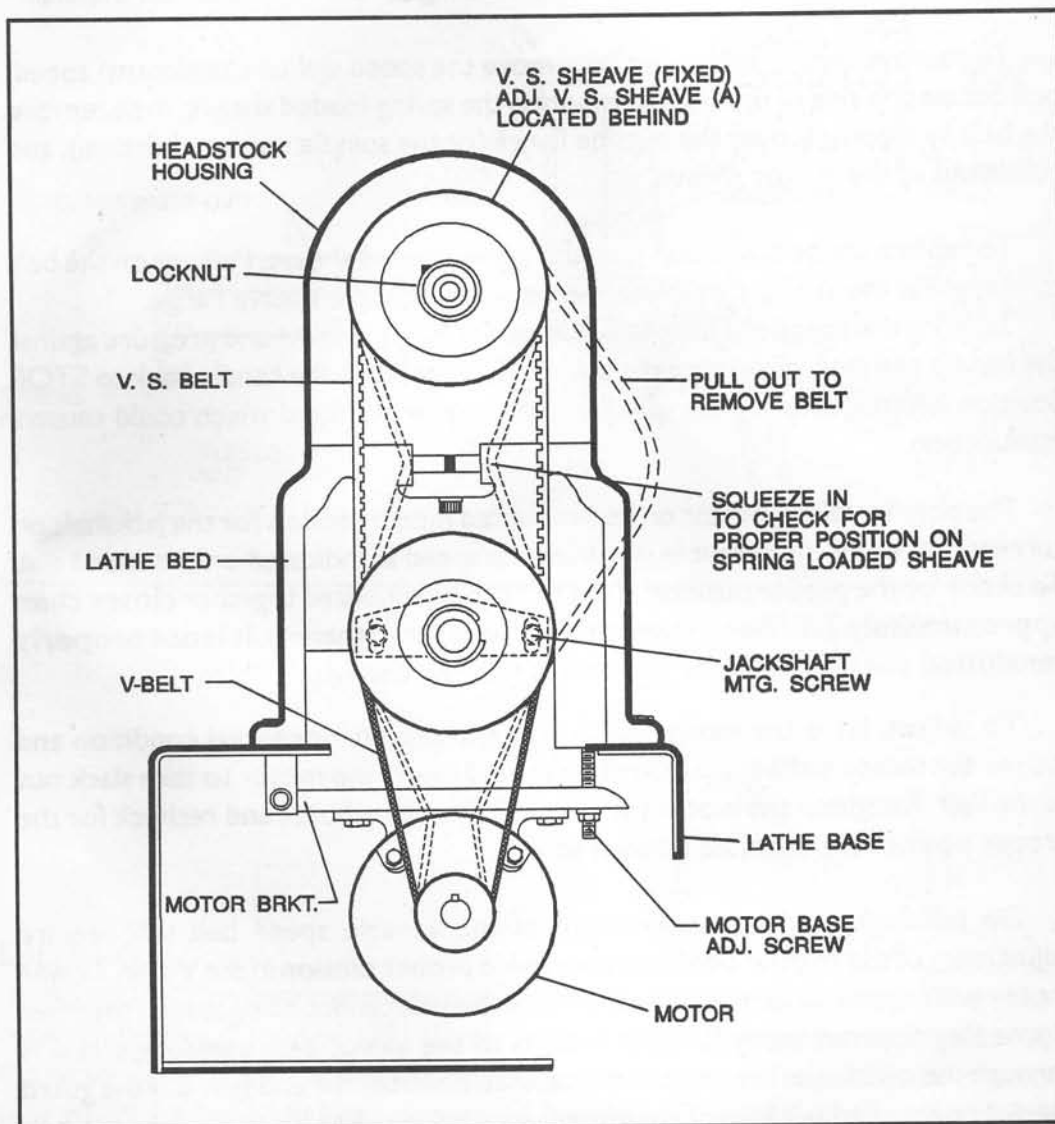


FIG. 3

## Belt and Drive Adjustment:

**CAUTION:** Disconnect lathe from power source before performing any maintenance.

The drive system on this lathe uses a spring-loaded and an adjustable variable speed sheave to provide infinitely variable speeds. On older models, the spring-loaded sheave was mounted on the motor shaft and on current models the sheave is jackshaft mounted. On current models, the motor is mounted to a motor bracket and a V-belt system drives the jackshaft.



**FIG. 4**

To access this area, and using Figs. 3 and 4 to assist, remove the guard at the left end of the lathe. With the speed dial in the STOP position, the variable speed belt should be flush with the outside diameter of the spindle mounted adjustable variable speed sheave (A) located behind the fixed sheave. To adjust the belt to this position, loosen the hex. head cap screw in the lock nut (C), or cap screw in current models, and the set screw (O) in the fixed half of the variable speed sheave (D),

Rotate the locknut to move the sheave in or out until the belt is flush with the outside diameter of the sheave or the fixed sheave bottoms against the adjustable half of the sheave. Relock the fixed sheave. Retighten the hex. head cap screw in the locknut and the set screw in the sheave.

**NOTE:** If the belt is down from the outside diameter by more than 1/8 inch after spindle sheave adjustment, the belt is excessively worn and should be replaced.

**CAUTION:** If the belt is not flush with the outside diameter of the spindle sheave at stop position, the spindle speed could be higher than indicated on the dial.

To remove the variable speed belt, move the speed dial to **maximum speed**, pull out on one side of the belt to compress the spring-loaded sheave, then remove the belt by slipping it over the outside flange (or the spindle mounted sheave), and pull it out of the motor sheave.

To replace the belt, position it on the spring-loaded sheave. Pull out on the belt to compress the spring then place belt over the spindle sheave flange.

To bring the speed dial back to STOP position, apply firm hand pressure against the handle and manually rotate the spindle. Do not force the handle back to STOP position without rotating the spindle. Parts may be damaged which could cause a malfunction.

The position of the motor on bed-mounted motor models (or the jackshaft on current models) is important in obtaining the speed as indicated on the speed dial. To check for the proper position, if the belt can be squeezed together **closer than approximately 2 inches** between the variable speed sheaves, it is **not properly tensioned** and the motor or jackshaft is not low enough.

To adjust, leave the motor pulley spring in the **compressed** condition and loosen the motor bolts (or jackshaft bolts) and lower the motor to take slack out of the belt. Retighten the motor (or jackshaft mounting bolts) and recheck for the proper positioning. Readjust if required

On jackshaft models, readjustment of the variable speed belt will require adjustment of the **motor position** to provide proper tension in the V-belt. Lower motor with motor base adjusting screw until the belt cannot be squeezed together closer than approximately 2 inches. Access to the motor base adjusting screw is through the opening at the front of the cabinet. Reinstall the end guard. If the guard cannot be installed because of interference with the spring-loaded pulley, the belt has either stretched or is worn to the point where it must be replaced.  
**CAUTION:** Operating the machine with the motor or jackshaft out of position can result in spindle speeds higher than indicated on the speed dial. This results in the use of a speed which is too high for the operation to be performed and could cause serious injury.

### Tool Rest:

The tool rest, Fig. 5, is designed to allow adjustment for height, position on the bed, and angle to the work. Three blades are available; six inch straight length (standard), 16 inch straight length (optional), and a right angle style (optional). Periodically the tool rest should be disassembled and the parts cleaned and oiled to provide free movement of the parts to insure good clamp action.

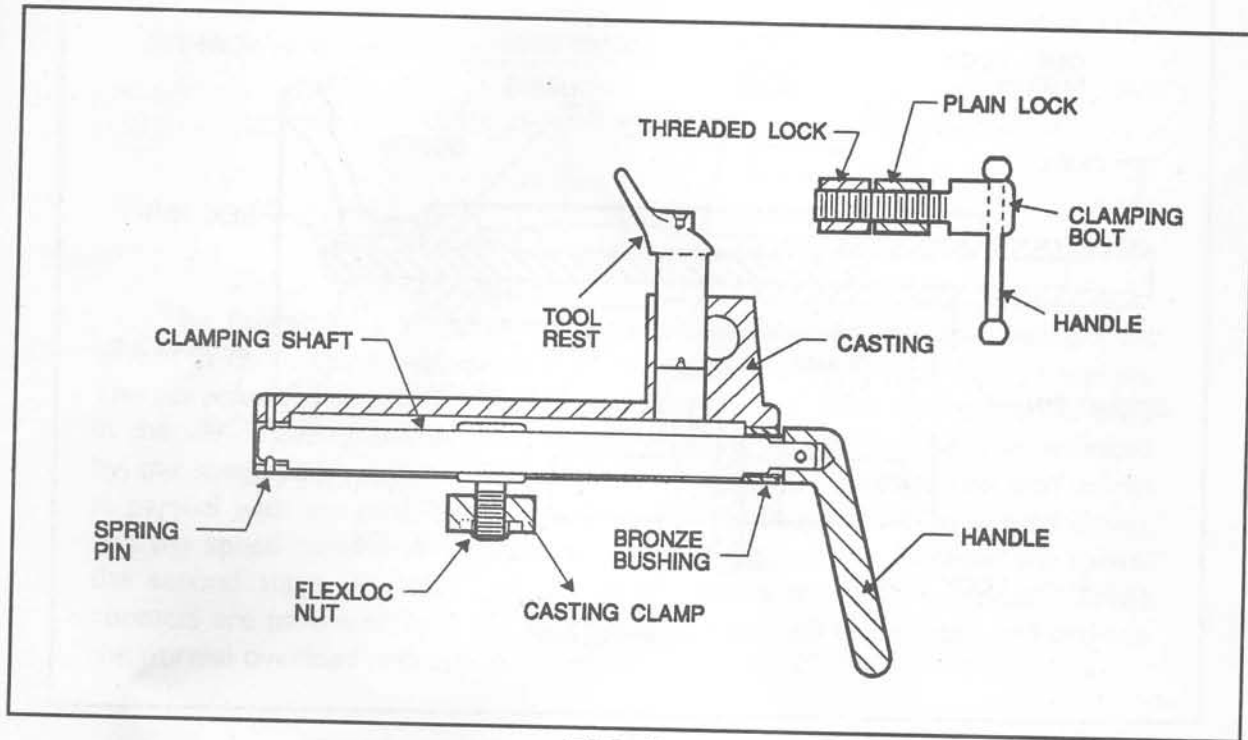


FIG. 5

### Lubrication:

All anti-friction bearings are sealed for life and require no lubrication. The area between bearing (F) and seal (R) shown in Fig. 3, page 10, is packed with grease at the factory to lubricate sliding sheave (N) on the spindle and should be re-packed only when the head has been dismantled for repair. The oil fitting on top of the headstock should be oiled with 5 or 6 drops of SAE 10 weight oil for each day's operation to insure free movement of the sliding sleeve.

### Tailstock:

The tailstock assembly shown in Fig. 6 requires a minimum of service, however, the No. 2 Morse taper hole should be checked periodically to insure it is free of nicks and rust. The tailstock screw and thrust bearing should be coated with Fisk Lubriplate 630A or equivalent.

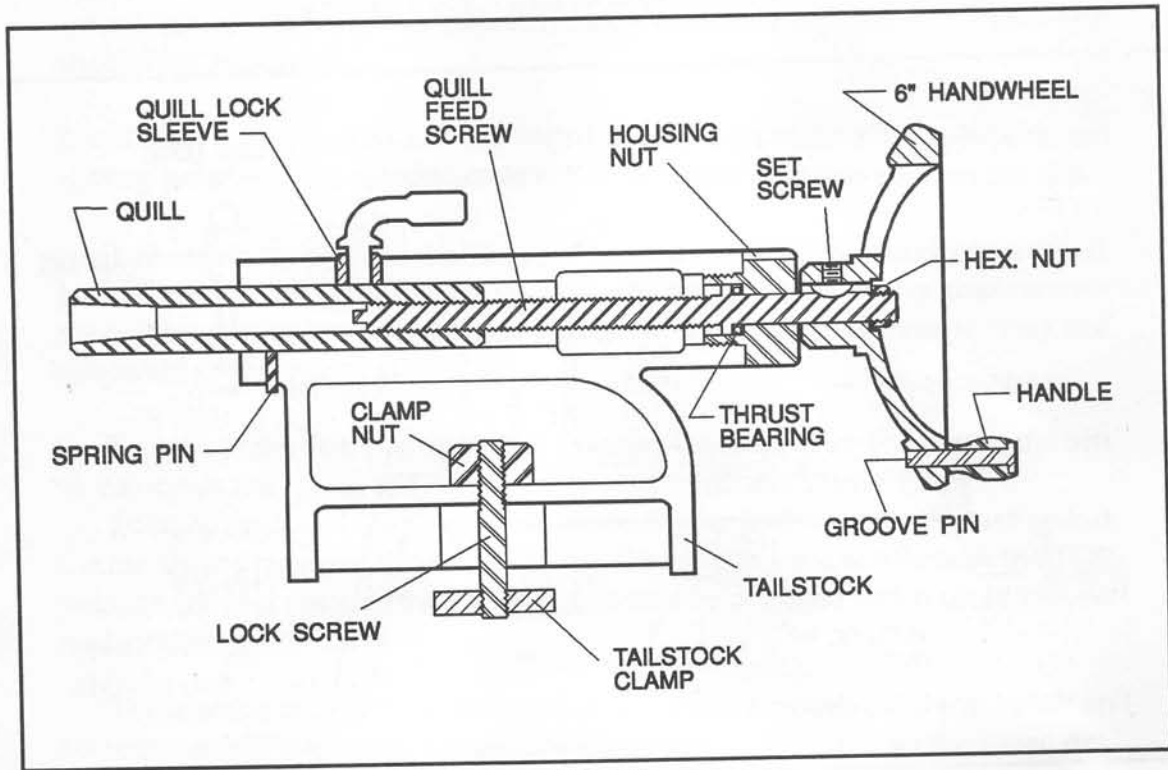


FIG. 6

### ELECTRICAL: Parts List

#### MANUAL SWITCHES

REF.	QTY.	EDP No.	DESCRIPTION
S1	1	6821365	SWITCH, FURNAS, 3PH, 12BA34P
		6821366	SWITCH, FURNAS, 1PH, 12BA24P

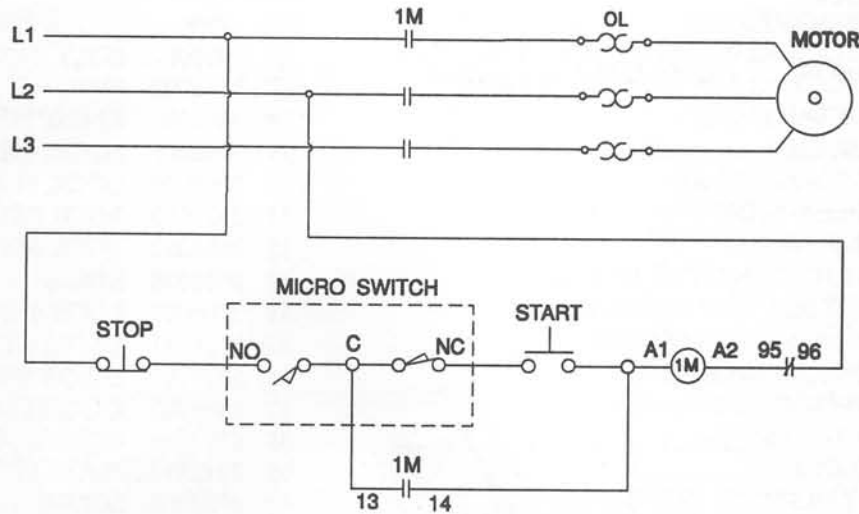
#### MAGNETIC STARTERS

(single phase controls)

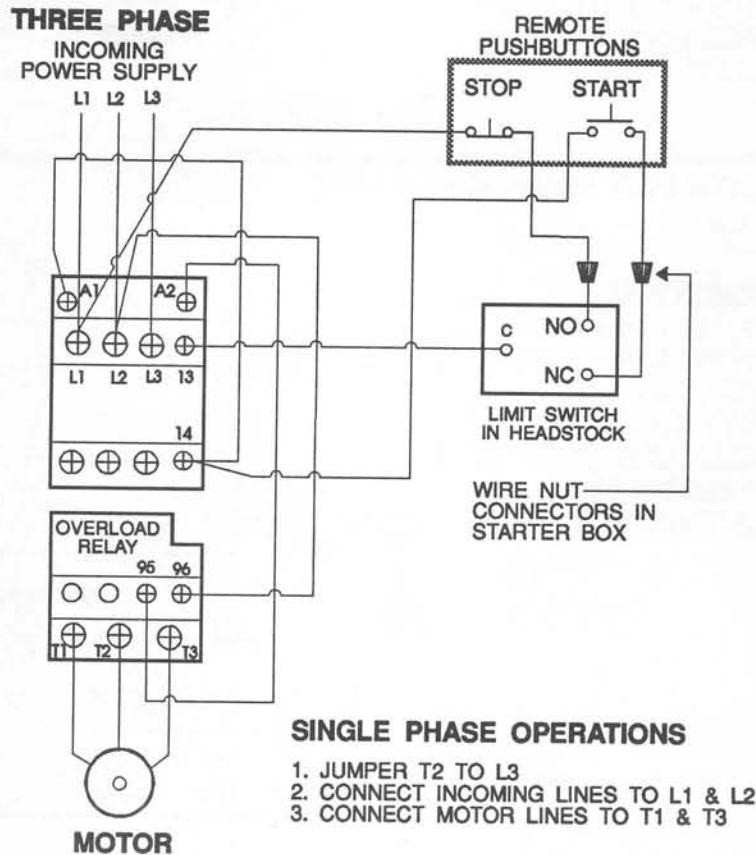
MOTOR SIZE	STARTER CONTACTOR	OVERLOAD RELAY
1HP - 115 V	6816250	6659051
1HP - 230 V	6816248	6659049

(three phase controls)

MOTOR SIZE	STARTER CONTACTOR	OVERLOAD RELAY
1HP - 230 V	6816248	6659047
1HP - 460 V	6816249	6659046



The Powermatic 90 lathe has a control circuit that utilizes a micro limit switch in conjunction with a standard momentary contact push button station. The purpose of the micro switch is to insure that the lathe can be started **only** in the slow speed position. The micro switch is located behind, and activated by, the speed control cam. This switch is a two pole, two stage unit that works in parallel with the push button station. When the start button is held down, and the speed control cam turned to the start position to increase the speed, the second stage, or "click", of the switch opens the N.C. contacts. These contacts are paralleled by a set of holding contacts on the starter and provide the normal overload protection.

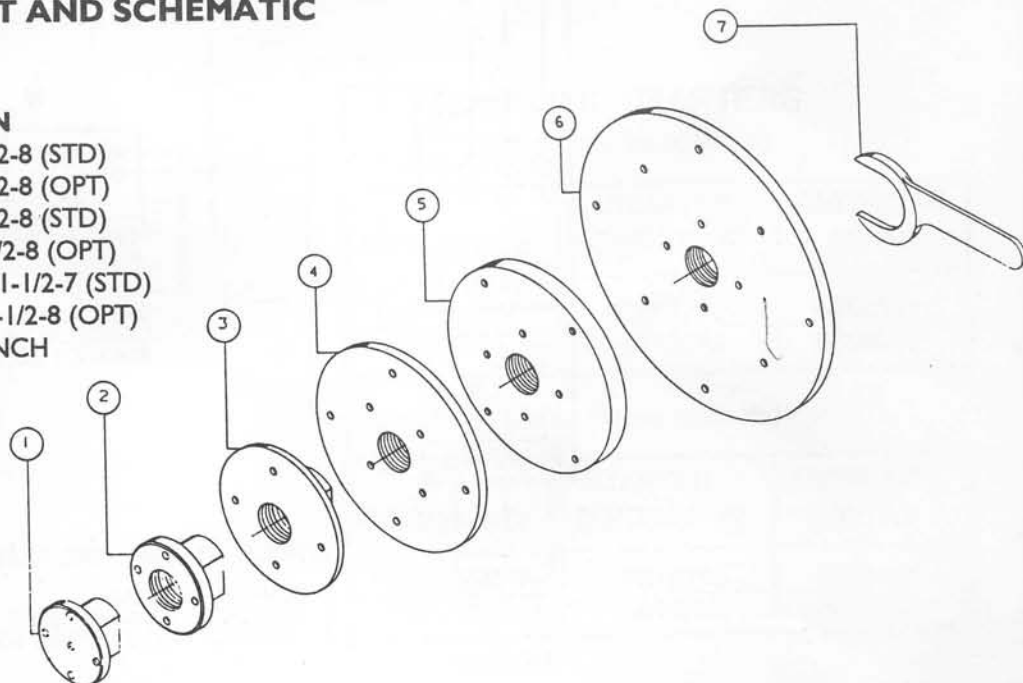


# STAND AND BED ASSEMBLY / PARTS LIST

ITEM PART		DESCRIPTION	ITEM PART		DESCRIPTION
No.	No.		No.	No.	
	2800002	TAILSTOCK ASSY (ITEMS 1 THRU 17)	26	3058005	BOLT, TOOL SUPPORT CLAMP
	2092003	TAILSTOCK CLAMP ASSY (ITEMS 1 & 2)	27	3268002	HANDLE
1	3092004	CLAMP, TAILSTOCK	28	3406016	KNOB, HANDLE
2	3695030	SCREW, LOCK	29	3448009	LOCK, THREADED
3	6624006	PIN, GROOVE 1/4 X 3	30	3448008	LOCK, PLAIN
4	3268201	HANDLE, NYLON	31	3658010	TOOL REST 6"
5	3271049	6" HANDWHEEL	32	3658022	TOOL REST 16"
6	6568010	HEX NUT, THIN HT LT 1/2 X 20	33	3406018	KNOB
7	6715013	SOC SET SCR, CUP PT 5/16-18 X 3/8	34	3708002	LOCK SHAFT, LOWER DOOR
8	3529011	HOUSING NUT, TAILSTOCK	35	2136041	LATHE DOOR ASSY. WELDMT.
9	6064000	BEARING, 1/4 NICE No. 603	36	3738201	DOOR SHAFT SPACER
10	6420000	KEY, WOODRUFF No. 404	37	3448002	DOOR LOCK
11	3692003	QUILL FEED SCREW	38	6714004	SCREW, SOC SET 1/4-20 x 1/4
12	3799002	TAILSTOCK	39	3312290	PLATE, I.D.
13	3526204	NUT, TAILSTOCK CLAMP SPEC.	40	6747000	SCREW, DRIVE, RD.HD 4x3/16
14	3268001	HANDLE, QUILL LOCK	41	3868001	WRENCH, TAILSTOCK
15	3728005	SLEEVE, QUILL LOCK	42	3595007	PLATE, DUST BED GAP
16	6626028	PIN, SPRING 3/16 X 1/2	43	3359206	PLATE, STRAIGHT BED DUST
17	3640002	QUILL, TAILSTOCK	44	6714063	SCREW, RD HD 1/4-20 x 1/2
	2063011	TOOL REST BRACKET ASSY (ITEMS 18 THRU 25)	45	6716037	SCREW, HEX HD 3/8-16 x 2
18	3268003	HANDLE, TOOL REST	46	3047011	LATHE BED W/O GAP
19	6626032	PIN, SPRING 3/16 X 1-1/4	47	3047012	LATHE BED W/GAP
20	6095038	BUSHING, BRONZE 7/8 X 1 X 7/8	48	3837223	WASHER, NEOPHRENE
21	3708006	TOOL REST CLAMPING LOCK SHAFT	49	2759045	STAND ASSY, WELDMENT
22	3058001	BOLT, TOOL SUPPORT	50	6861300	WASHER, LOCK 3/8
23	3092005	CLAMP, TOOL REST	51	6516001	NUT, HEX 3/8-16
24	6520009	HEX LOCK NUT, THIN HT FLEX LOC	52	6626038	PIN, SPRING 1/4 x 1
25	3658001	TOOL REST (CASTING)	53	6112002	CUP #2MT W/CENTER
	2695016	LOCK SCR ASSY (ITEMS 26 THRU 28)	54	2084002	BALL BRG. TAILSTOCK CENTER (OPTIONAL) NOT SHOWN
	2440003	TOOL REST LOCK ASSY (ITEMS 26 THRU 30)	55	2787005	TOOL SUPPORT OFFSET (COMP) (OPTIONAL) NOT SHOWN

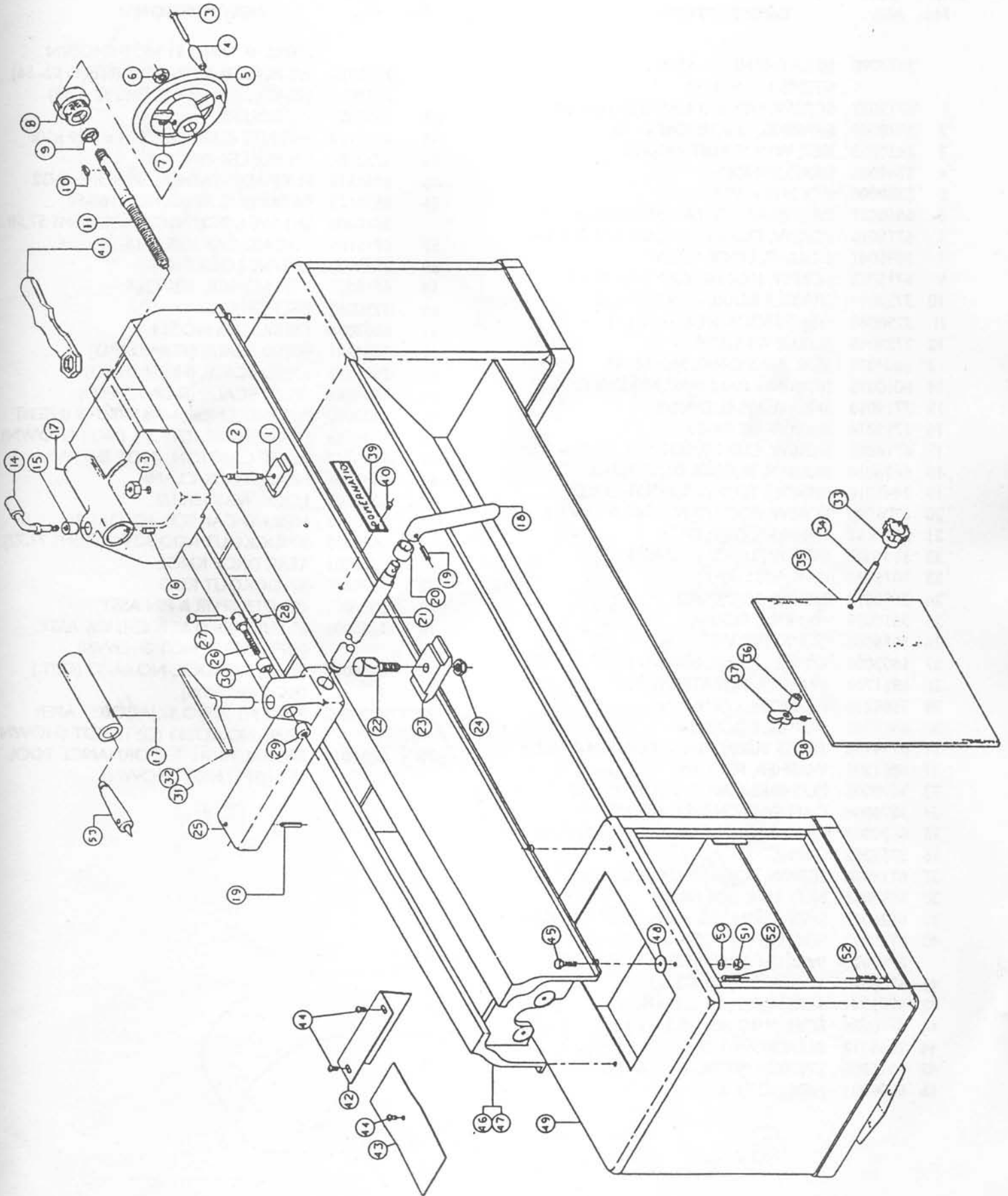
## FACE PLATES \ PARTS LIST AND SCHEMATIC

ITEM PART		DESCRIPTION
No.	No.	
1	3193005	3" FACE PLATE 1-1/2-8 (STD)
2	3193004	4" FACE PLATE 1-1/2-8 (OPT)
3	3193035	7" FACE PLATE 1-1/2-8 (STD)
4	3193008	8" FACE PLATE, 1-1/2-8 (OPT)
5	3193010	8-1/2" FACE PLATE 1-1/2-7 (STD)
6	3193012	12" FACE PLATE, 1-1/2-8 (OPT)
7	6960040	FACE PLATE WRENCH





# STAND AND BED ASSEMBLY / SCHEMATIC



# HEAD AREA ASSEMBLY \ PARTS LIST

ITEM PART  
No. No.

DESCRIPTION

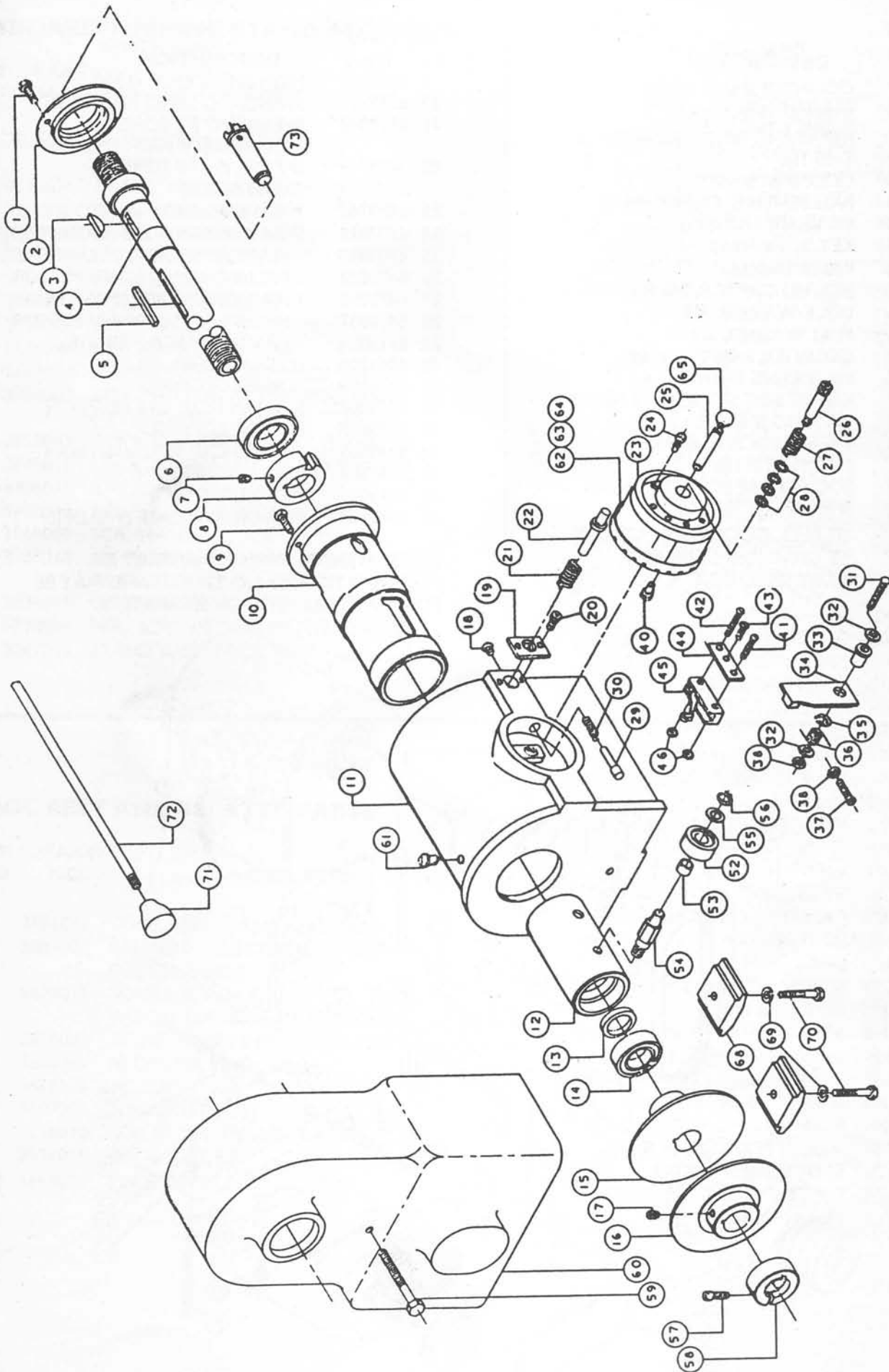
	2277098	90 LATHE HEAD ASSY (ITEMS 1 THRU 58)
1	6715035	SCREW, HEX HD CAP 5/16-18 x 3/4
2	3078009	BEARING, SLEEVE CAP L- 10
3	6420003	KEY, WOODRUFF NO.810
4	3749006	HEAD, SPINDLE
5	3388008	KEY 3/16 x 3/16 x 1-1/2
6	6060037	BALL BEARING, FAFNIR #207KLL
7	6715015	SCREW, CUP PT. SOC SET 5/16-18 x 1/4
8	3096041	COLLAR, LOCK SLEEVE
9	6715032	SCREW, HEX HD CAP 5/16-18 x 1
10	3728011	SPINDLE BEARING SLEEVE L-3
11	3298061	HEADSTOCK HOUSING L- 1
12	3728045	SLEEVE V/S SLIDING
13	6804019	SEAL, NATIONAL NO 50189.
14	6060075	BEARING, BALL MRC NO.208FFS
15	3719013	SHEAVE V/S SLIDING L-6
16	3719014	SHEAVE V/S RIGID, L-9
17	6716003	SCREW, CUP PT. SOC SET 3/8-16 x 3/8
18	6636014	BUMPER. RUBBER DUST PLUG
19	3448010	SPINDLE PLUNGER PLATE LOCK
20	6706004	SCREW, SOC HD NYLON 6-32 x 1/4
21	6813062	SPRING, COMP, LP-75
22	3601006	SPINDLE LOCK PLUNGER
23	3076043	CAM, V/S L-37
24	3690012	SCREW ADJ. SPEED
25	3670029	HANDLE, ROD V/S
26	3058006	BOLT MTC V/S
27	6803006	SPRING TENSION V/S L-10 (6813006)
28	6861702	WASHER, NYLATRON E-6
29	3585210	PLUNGER, LOCK PIN
30	6813040	SPRING, LOCK PIN
31	6714106	TRUSS, HD MACH SCREW, 1/4-20 x 3/4
32	6861101	WASHER, FLAT 1/4
33	3070005	BUSHING CAM SWITCH SPACER
34	3076009	CAM SWITCH, MOUNTING
35	6670087	RING RETAINING TRUARC #5105-50
36	3755202	SPRING
37	6714060	SCREW, SOC HD 1/4-20 x 1
38	6514001	NUT, HEX JAM 1/4-20
39	6626010	SPRING PIN, 3/32 x 5/16 (NOT SHOWN)
40	6715023	SOC HD CAP SCR- 5/16-18 x 1/2
	2793007	SWITCH ASSY. (ITEMS 41 THRU 51)
41	6706046	SCREW RD HD 6-32x1-1/4
42	6706044	SCREW RD HD 6-32x1-1/2
43	6710034	SCREW RD HD 10-24x1/2
44	3055012	BLOCK SWITCH MTG.
45	6816005	SWITCH MICRO BZ2GW822
46	6506001	HEX NUT, 6-32

ITEM PART  
No. No.

DESCRIPTION

		ITEMS 47 THRU 51 NOT SHOWN
	2673018	V/S ROLLER & PIN ASSY (ITEMS 52- 56)
	2673016	V/S ROLLER ASSY (ITEMS 52 & 53)
52	3673003	V/S ROLLER
53	6095119	BRONZE BUSHING,, 504 x .629 x 1/2
54	3582084	V/S ROLLER PIN
55	6861512	FLAT ADJ WASHER, 1/2 x 3/4 x 1/32
56	6670123	RETAINING RING, NO.5160-50
	2526008	SHEAVE LOCK NUT ASSY. ITEMS 57,58
57	6715185	SOC HD CAP SCR, 5/16-18 x 3/4
58	3528002	SHEAVE LOCK NOT
59	6718022	HEX HD SCR, 1/2- 13x4
60	3250062	BELT GUARD
61	6607004	OILER, GITS NO.551
62	3684251	SPEED SCALE, (STANDARD)
63	3684252	SPEED SCALE, (HIGH SPEED)
64	3684254	SPEED SCALE, (SLOW SPEED)
65	6430010	ROUND KNOB, 1-7/8 W5/8-18 INSERT
66	3330283	PLATE INSTRUCTION, (NOT SHOWN)
67	3330297	PLATE CAUTION, (NOT SHOWN)
68	3092006	HEADSTOCK CLAMP
69	6861500	LOCK WASHER, 1/2
70	6718017	HEX HD CAP SCR, 1/2-13x1-3/4
	2670008	KNOCKOUT ROD ASSY. (ITEMS 71,72)
71	3406201	TEAR DROP KNOB
72	3670021	KNOCKOUT ROD
73	2084001	CENTER SPUR & PIN ASSY
75	2085004	3" THREADED SCR. CHUCK ASSY. (OPT. WELD. NOT SHOWN)
76	6118013	IACOBS CHUCK, NO.6A-33 (OPT.) (NOT SHOWN)
77	6023003	NO.2 MT X NO.33 JACOBS TAPER ARBC NO.AO233 (OPT. NOT SHOWN)
78	6829019	SPECIAL HIGH PERFORMANCE TOOL SET (OPT. NOT SHOWN)

# HEAD AREA ASSEMBLY \ SCHEMATIC

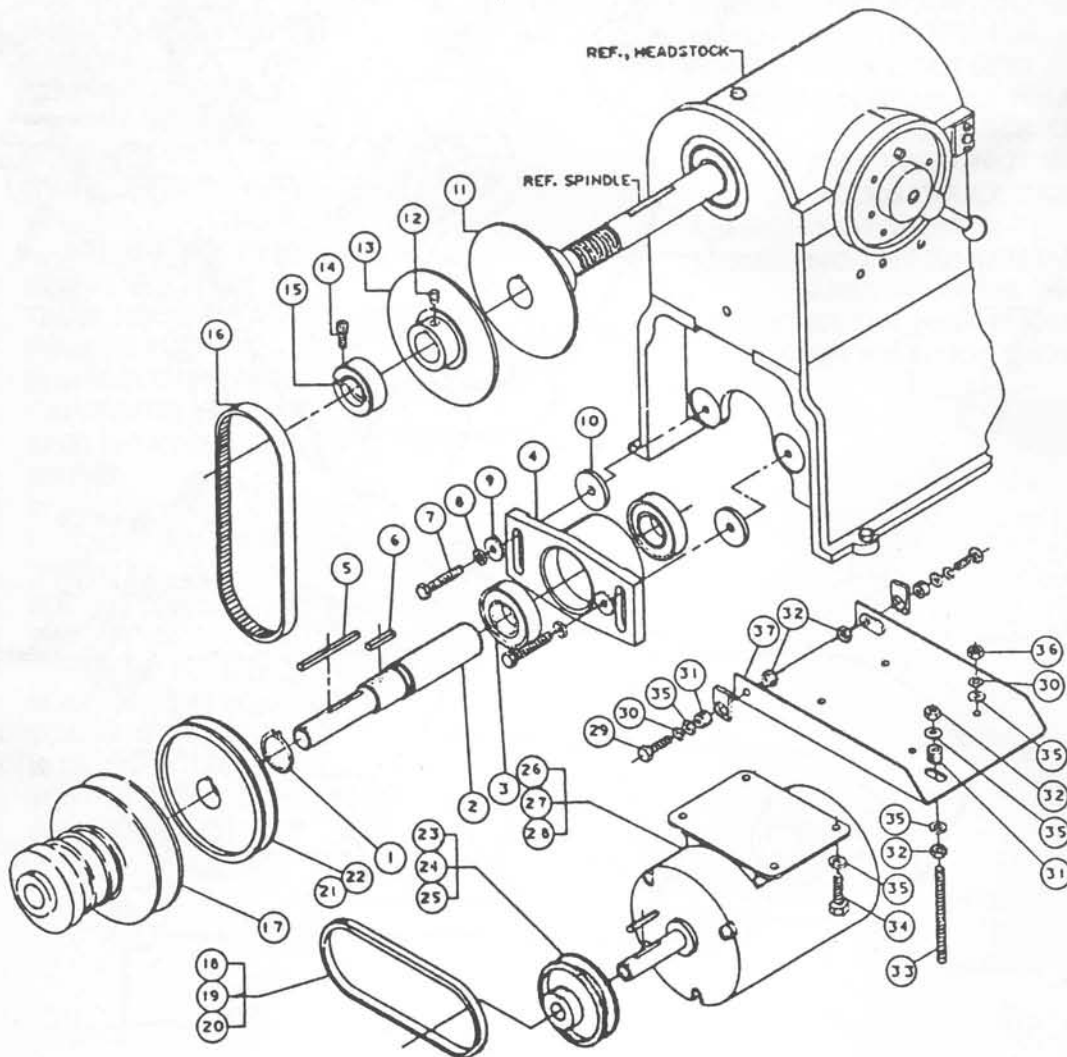


# DRIVE AREA \ PARTS LIST AND SCHEMATIC

ITEM No.	PART No.	DESCRIPTION
	2705017	COUNTER SHAFT ASSY. (ITEMS 1 THRU 4)
1	6670005	RETAINING RING, TRUARC NO. 5100-100
2	3704034	COUNTER SHAFT
3	6060010	BALLBEARING, FAFNIR 205 PP
4	3298032	V/S SHAFT HOUSING
5	3388015	KEY, 3/16x3/16x2-1/4
6	3388004	KEY, 3/16x3/16x1
7	6716032	HEX HD CAP SCR, 3/8-16x1-1/2
8	6861301	LOCK WASHER, 3/8
9	6861301	FLAT WASHER, 3/8
10	3741022	COUNTER SHAFT SPACER
11	3719013	V/S SLIDING SHEAVE, L-6
12	6716003	CUP PT SOC SET SCR, 3/8-16x1-1/2
13	3719014	V/S RIGID SHEAVE, L-9
	2526008	SHEAVE LOCK NUT ASSY. (ITEMS 14 & 15)
14	6715185	SOC HD CAP SCR, 5/16-18x3/4
15	3528002	SHEAVE LOCK NUT
16	6077050	V/S BELT, GOODYEAR I422V360
17	2719094	V/S DRIVING SHEAVE ASSY
18	6077010	SLOW SPEED BELT, 4L340

ITEM No.	PART No.	DESCRIPTION
19	6077009	HIGH SPEED BELT, 4L330
20	6077135	STANDARD SPEED BELT, 4L310
21	6807040	SHEAVE W/ 7/8 BORE (STANDARD & HIGH SPEED)
22	6807049	SHEAVE W/ 7/8 BORE (SLOW SPEED)
23	6807101	SHEAVE W/ 5/8 BORE (STD SPEED)
24	6807035	SHEAVE W/ 5/8 BORE (HIGHSPEED)
25	6807027	SHEAVE W/ 5/8 BORE(SLOWSPEED)
26	6471022	1 HP, 1800 RPM, 115/230V MOTOR
27	6471036	1 HP, 1800 RPM, 200V MOTOR
28	6471037	1 HP, 1800 RPM, 230/460V MOTOR
29	6715032	HEX HD CAP SCR, 5/16-18x1
30	6861200	LOCK WASHER, 5/16
31	6336008	RUBBER GROMMET
32	6515007	HEX JAM NUT, 5/16-18
33	3773067	MOTOR ADJ STUD
34	6715035	HEX HD CAP SCR, 5/16-18x3/4
35	6861201	FLAT WASHER, 5/16
36	6515001	HEX NUT, 5/16-18
37	2042160	MOTOR ASSY BASE (WELDMNT)

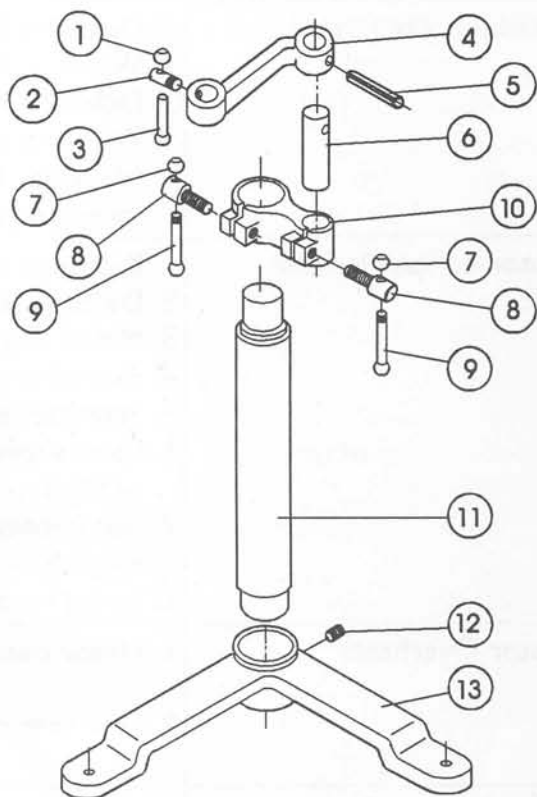
NOTE: ITEMS 11 THRU 15 ARE PART OF POWERMATIC ASSY NO 2277098 AND MAY BE PURCHASED AS SUCH OR SEPARATELY



## OPTIONAL EQUIPMENT

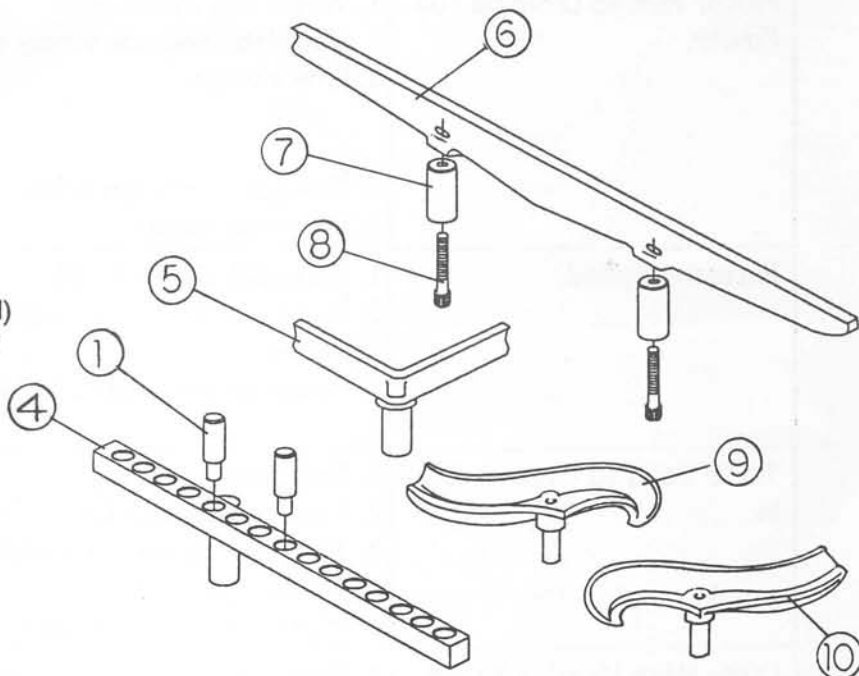
### OUTBOARD TURNING STAND ASSEMBLY

ITEM No.	PART No.	DESCRIPTION
	2025016	OFFSET TOOL REST ARM (1 THRU 6)
	2695026	OFFSET TOOL REST ARM LOCK SCR. ASSY. (1 THRU 3)
1	3406016	KNOB, HANDLE
2	3695017	SCR., OFFSET TOOL REST ARM 5/8-18 x 2-5/8"
3	3268002	SCR., HANDLE LOCK
4	3658006	ARM, TOOL REST, OFFSET
5	6626044	PIN, SPRING, 1/4 x 2-1/2"
6	3584014	PIN, SWIVEL, OFFSET TOOL REST
	2759009	STD., OUTBOARD TURNING TOOL (7 THRU 13)
	2658003	TOOL REST OFFSET ASSY. (7 THRU 10)
	2695016	LOCK SCREW ASSEMBLY (7 THRU 9)
7	3406016	KNOB, HANDLE
8	3058005	BOLT, TOOL SUPPORT CLAMP
9	3268002	SCR., HANDLE LOCK
10	3289018	OUTBOARD & SWIVEL TOOL RESTHOLDER
11	2096035	COLUMN ASSY. (WELDMENT)
12	6718034	SCR., SOC. 1/2 DOG PT., 1/2-13 x 1/2"
13	3042063	STAND BASE, TOOL REST



### TOOL REST AND RELATED PARTS

ITEM NO.	PART NO.	DESCRIPTION
1	3585011	TOOL REST PIN 5/8 x .495 x 3.50
2	2084002	BALL BRG. TAILSTOCK CENTER (NOT SHOWN)
3	6829019	TOOLS, SET OF 8, WOOD TURNING (NOT SHOWN)
4	2658002	12" METAL SPINNING TOOL REST
5	3658007	90 DEGREE TOOL REST
6	3658006	24" TOOL REST
7	3607001	TOOL REST POST
8	6716020	SCREW SOC HD 3/8-16 x 3
9	3658019	TOOL REST R.H.
10	3658024	TOOL REST L.H.



## TROUBLE-SHOOTING

TROUBLE	POSSIBLE CAUSE	REMEDY
Excessive Vibration	<ol style="list-style-type: none"> <li>1. Defective Spindle Bearings.</li> <li>2. Worn or defective belt.</li> <li>3. Defective motor.</li> <li>4. Workpiece warped, out-of-round, has major flaw, or was improperly prepared for turning.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace bearings.</li> <li>2. Replace belt.</li> <li>3. Replace motor.</li> <li>4. Correct problem by planing or sawing, or scrap workpiece.</li> </ol>
Motor or Spindle Stalls	<ol style="list-style-type: none"> <li>1. Excessive cut.</li> <li>2. Defective motor.</li> <li>3. Motor clogged with sawdust.</li> <li>4. Excessive belt wear.</li> <li>5. Improper belt adjustment.</li> <li>6. Fixed sheave on spindle out of position or frozen.</li> <li>7. Belt between motor and jackshaft slipping.</li> <li>8. Spring loaded pulley frozen.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reduce cut depth.</li> <li>2. Replace motor.</li> <li>3. Clean motor.</li> <li>4. Replace belt.</li> <li>5. Readjust belt.</li> <li>6. Readjust position or lubricate sleeve with light weight oil.</li> <li>7. Re-tension belt.</li> <li>8. Free pulley and lubricate with silicone spray.</li> </ol>
Motor Overheats	<ol style="list-style-type: none"> <li>1. Motor overloaded.</li> <li>2. Improper cooling on motor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Correct overload condition, such as reducing cut depth.</li> <li>2. Clean sawdust from fan and duct areas of motor.</li> </ol>
Motor Starts Slowly or Fails to Come up to Speed.	<ol style="list-style-type: none"> <li>1. Low voltage.</li> <li>2. Centrifugal switch not operating.</li> <li>3. Defective motor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Request voltage check from power company and correct low voltage condition.</li> <li>2. Replace switch or motor.</li> <li>3. Replace motor.</li> </ol>
Motor Fails to Develop Full Power.	<ol style="list-style-type: none"> <li>1. Power line overloaded.</li> <li>2. Undersize wires in supply system.</li> <li>3. Low voltage.</li> <li>4. Clogged motor fan areas.</li> <li>5. Defective motor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Correct overload condition.</li> <li>2. Increase supply wire size.</li> <li>3. Request voltage check from power company and correct low voltage condition.</li> <li>4. Clean motor fan area.</li> <li>5. Replace motor.</li> </ol>
Excessive Speed.	<ol style="list-style-type: none"> <li>1. Excessive wear on belt.</li> <li>2. Fixed spindle sheave is out of position.</li> <li>3. Motor or jackshaft out of position.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace belt.</li> <li>2. Readjust per maintenance instructions.</li> <li>3. Readjust per maintenance instructions.</li> </ol>
Tools Tend to Grab or Dig in.	<ol style="list-style-type: none"> <li>1. Dull tools.</li> <li>2. Tool rest set too low.</li> <li>3. Tool rest set too far from workpiece.</li> <li>4. Improper tool being used.</li> </ol>	<ol style="list-style-type: none"> <li>1. Sharpen tools.</li> <li>2. Reposition tool rest height.</li> <li>3. Reposition tool rest closer to workpiece</li> <li>4. Use correct tool for operation.</li> </ol>
Lathe With Variable Speed Runs at One Speed.	<ol style="list-style-type: none"> <li>1. Drive or driven variable speed pulley frozen.</li> </ol>	<ol style="list-style-type: none"> <li>1. Free and lubricate with SAE 10 oil.</li> </ol>

***POWERMATIC***®

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