

# POWERMATIC®

## OPERATING INSTRUCTIONS

Model # 90

# AND

Serial # 890124

## PARTS LIST

Model 90 Lathe

*parts for other  
go to the  
one on right*

Model # 90

Serial # 89093

FOR SERIAL NUMBERS FROM 1000 UP



McMINNVILLE, TENNESSEE 37110

## OPERATING AND SAFETY SUGGESTIONS

1. Remove or fasten loose articles of clothing, such as necktie, sleeves, coat, etc.
2. Remove finger rings and watch.
3. Locate dead centers and lubricate tail stock end with wax or grease, place material in lathe, tighten tail stock with hand wheel, but do not bind, lock securely in place.
4. Securely fasten spur center to material being turned.
5. Test the set-up by revolving work by hand.
6. The tool rest should be adjusted so the point of the cutting tool is about  $\frac{1}{8}$ " above center. Tools held below center will not give top quality turning and are hazardous not only to the operator but to others in the area.
7. Use face shield or goggles to protect eyes.
8. Use correct cutting tool.
9. Use slower speeds for roughing and long work, increasing speed correspondingly to finishing operations.
10. For sanding, move tool rest back from work, apply light pressure and use same speed as for turning.
11. When face plate turning, be sure the stock is securely fastened to plate, the stock is centered and the tool rest adjusted so cutting tool will be on center line.
12. Before inserting end centers, check to be sure they are free from dirt or rust. Oil lightly before inserting.
13. When turning large objects such as glued pieces for bowls, always operate lathe at low speeds until finishing operations. This will prevent "exploding."
14. Make use of "speed limiter" to control top speed of lathe for each specific turning operation.
15. Never "horse around" or play around lathe when in operation. Nine out of ten accidents are caused by carelessness or playing with a machine as though it were a toy.
16. Always disconnect power source when making adjustments in order to avoid accidental starting.
17. Use only Powermatic or factory authorized replacement parts and accessories, otherwise all warranty and guarantee is null and void.
18. Never use dull turning tools—sharp instruments prevent "grabbing" or the jerking of tools from operator's hand.
19. Base of lathe should be grounded to water pipe or central grounding system.

**I. MACHINE DESCRIPTION AND SPECIFICATIONS**

- BED:** Made from the finest grey iron castings, reinforced with ribs to give maximum rigidity. Standard bed 60" long, can be furnished in longer lengths.
- HEAD STOCK:** The head stock has built-in variable speed which offers a complete range from 500 to 4000 RPM. The spindle runs in extra large precision sealed for life ball bearings.
- TAIL STOCK:** The tail stock has a 1 3/8" spindle and is bored for a No. 2 Morse Taper. The center is easily removed by backing off the tail stock screw with the large handwheel.
- SPINDLE:** The spindle is machined from special carbon steel, precision ground for accuracy. Spindle nose is threaded 1 1/2" (right hand threads) and is bored for a No. 2 Morse Taper. The outboard end of the spindle is threaded 1 1/8" (left hand thread) for outboard face plate. The spindle has a locking pin to lock the spindle for removing face plates. Spindle cannot be locked with locking pin unless the switch is in "off" position, thus eliminating any possibility of locking spindle while the lathe is in operation.
- MOTOR DRIVE:** The motor is mounted in the bed of the lathe and is easily accessible by removing drive guard on end of machine. The motor drives the spindle with two variable sheaves and a wide V belt. The complete drive unit may be inspected by removing the drive guard. The outboard drive makes it possible to remove the belt without dismantling any part of the lathe.
- LATHE BASE:** The lathe bed is mounted on an enclosed base which features a door for tool storage.
- MOTOR SWITCH:** Motor switch is operated by the variable speed control, and can only be started at slow speed.
- SPECIFICATIONS:**

Swing over straight bed .....	12"
Swing over Gap .....	17"
Width of Gap .....	5 1/4"
Distance between centers .....	38"
Height of bed from floor .....	36"
Length of standard bed .....	60"
Overall length .....	67"
Width .....	16"
Motor .....	1 HP 3 or single phase
Switch .....	Manual with overload protection only
Variable speed .....	500 to 4000 RPM
Shipping weight, domestic crated .....	700 lbs.
Shipping weight, export crated .....	850 lbs.
Cu. Ft. Crated for export .....	60.4

**II. GENERAL SET-UP AND ALIGNMENT**

- 1. RECEIVING**  
Uncrate and check for shipping damage. Clean all coated and greased surfaces. Read instructions thoroughly. Locate all lubrication points, adjustments and methods of drive.
- 2. MOUNTING**  
Mount machine securely to solid foundation; concrete base mounting preferred. Locate in clean, dry and well ventilated building if possible. Motor and electrical connections should be protected when not in operation or if exposed to weather elements.
- 3. INSPECTION**  
The above machine requires a minimum amount of attention in service. Periodic or regular inspections are recommended to insure machine is in proper adjustment and has positive electrical connections; also, to check for worn or loose belts and loose or heating bearings.
- 4. BEFORE OPERATING**  
Check motor nameplate data or wiring of motor and switch for proper voltage connection before wiring into line. Run motor without load to check the connections and direction of rotation (motor must operate so stock will be coming from back to front). Always refer to motor nameplate for rotation connections.

### III. OPERATING INSTRUCTIONS

**MOTOR:** The lathe is equipped with a 1 HP 1800 RPM motor, mounted in lathe bed. The motor is checked at the factory and should give years of trouble free service. To inspect and service motor, remove guard (8) fig. 1, from end of lathe head stock by removing bolt in guard.

**BELT AND DRIVE:** The lathe spindle is driven with two variable split sheaves and a flat V-belt. The motor sheave is spring operated (10) fig. 2, and the lathe sheave spring operated (1) fig. 2, by a cam inside the lathe head and controlled with the variable speed plate (4) fig. 1. To remove drive belt, turn the power OFF the power line to the lathe, remove guard, turn the variable speed handle to the 4000 RPM position and remove belt. To replace belt, set variable speed dial to 4000 RPM position and replace belt. Turn variable speed handle back to the "stop" position, apply a steady pressure on the variable speed handle and rotate the sprindle by hand until the belt has been forced to the outside of the spindle sheave. **DO NOT FORCE HANDLE WITHOUT ROTATING SPINDLE.**

**MOTOR SWITCH:** The motor switch is mounted inside the head stock and is operated with the variable speed handle (11) fig. 2. The switch may be replaced or serviced in the following manner: remove the speed dial plate by removing bolt (6) fig. 2, loosen the four motor mounting screws in back of head stock and lower or remove motor; use an 11/32 wrench to hold the motor switch mounting screw nuts (7) fig. 2 on the inside of the head and use a screw driver to remove the two switch mounting screws. Pull the switch downward.

**SPEED DIAL:** To remove the speed dial; remove the variable speed dial bolt (6) fig. 2. To replace, set the dial on the 1000 RPM position, place on head about two inches above center and slide downward to correct position, replace bolt.

**SPINDLE:** To remove the spindle, first remove the face plate (9) fig. 1 by locking the spindle with the locking pin (5) fig. 1 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 (3) fig. 2 and unscrew the collar (left hand threads). Loosen the set screw in the outer variable speed sheave (Part #107) and slip the sheave off the spindle. Use a screw driver to apply pressure against the inner sheave (Part #106) and slide out, together with bearings (#105) and sheave key. Take out the two set screws (#110), remove retaining cap (#109) and gently bump spindle out (toward tail stock) with a block of wood. Replace in reverse order.

**SLEEVES, VARIABLE SPEED AND BEARING:** To remove the two sleeves after the spindle has been removed, remove plunger (5) fig. 1 by removing the plunger cap. Care should be taken that the lock pin (#114) does not drop down into the head stock. Loosen set screw (#125) by inserting a 5/32 allen wrench through slot in sleeve, turn about one round and remove the variable speed shifting pin (#122). Remove the sleeve retaining cap (6) fig. 1 and remove the variable speed sleeve (#102) and bearing sleeve (#101). Oil with a thin coat of oil before installing.

**STOP:** The variable speed control cam is drilled for "stop" screws to regulate maximum speed of lathe. Insert screw in desired maximum RPM and speed dial cam cannot be operated beyond pre-set RPM.

**TOOL REST:** The tool rest (15) fig. 1 can be adjusted to any desired angle, height or position on the lathe bed.

**LUBRICATION:** The bearings are sealed for life bearings and require no lubrication. The area between bearing (#105) and seal (#104) is packed with grease at the factory to lubricate sliding sheave (#106) and should be re-packed only when the head has been dismantled for repair. The oil fitting on the head stock should be oiled with 5 or 6 drops of No. 10 weight oil for each day's operation.

