

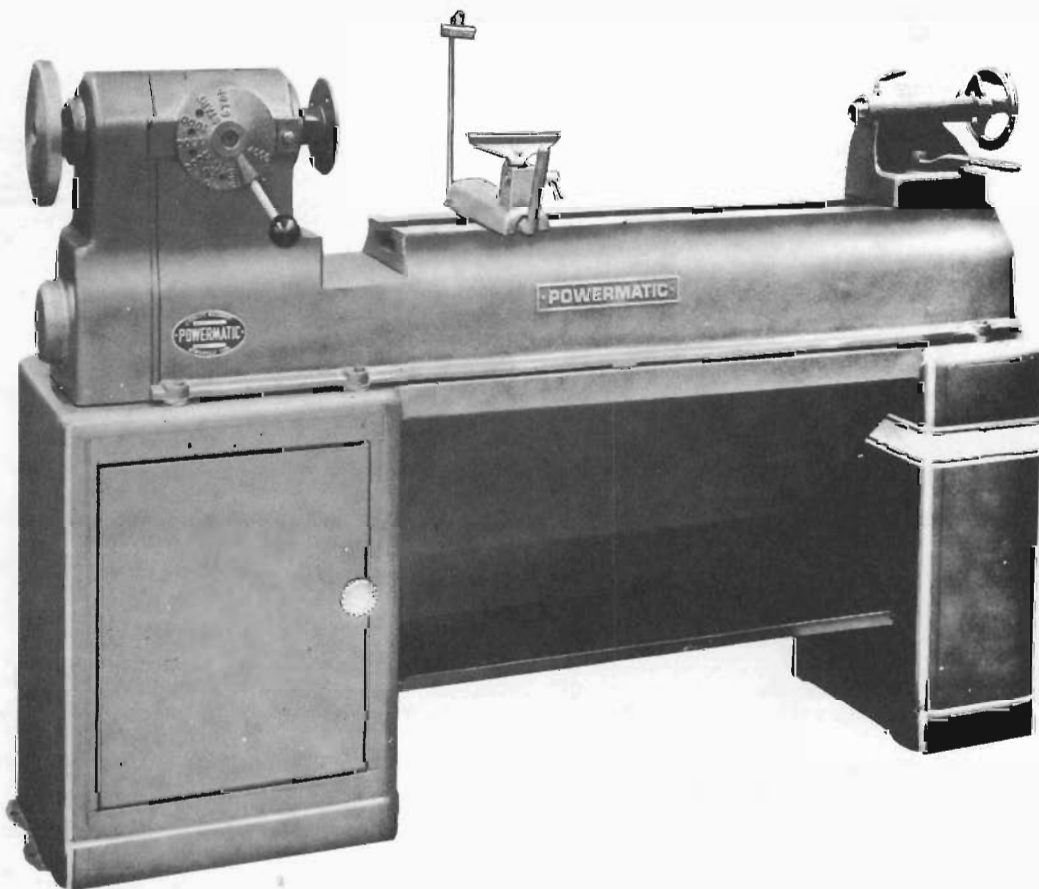
POWERMATIC

MODEL
90

12" LATHE

OPERATING INSTRUCTIONS AND PARTS LIST

FOR SERIAL NUMBERS FROM 1000 UP



POWERMATIC  **HOUDAILLE** .INC.
McMinnville, Tennessee 37110

Operating and Safety Instructions

1. Be sure machine is electrically grounded.
2. Remove or fasten loose articles of clothing such as necktie, sleeves, coat and confine long hair.
3. Remove jewelry such as finger rings, watches and bracelets.
4. Use safety face shield, goggles or glasses to protect eyes.
5. Keep the floor around the machine clean and free from scraps, sawdust, oil or grease to minimize the danger of slipping.
6. Securely fasten spur center to material being turned.
7. Check centers to be sure they are free from dirt or rust and oil lightly before inserting.
8. Insert centers and lubricate tailstock center with wax or grease, place material in lathe, tighten tailstock with hand wheel, but do not bind, lock securely in place.
9. The tool rest should be adjusted so the point of the cutting tool is about 1/8" above center and within 1/8" of the largest work piece diameter. Tools held below center will not give top quality turning and are hazardous not only to the operator but to others in the area. From time to time as work is rounded up, stop the lathe and bring the tool rest into the 1/8" radial clearance position. This will maintain better tool leverage and help to reduce the danger of the tool grabbing.
10. Test the set-up by revolving work by hand, and check set-up at the slowest speed before increasing to higher speed.
11. Be sure all guards are in place and securely fastened.
12. Make use of "speed limiter" to control top speed of lathe for each specific turning operation.
13. Check the condition of the stock. Be sure it is free from knots, checked ends, improperly cured glue joints or other conditions which may cause parts to fly out of the lathe.
14. When face plate turning, be sure the stock is securely fastened to plate and centered, and the tool rest adjusted so cutting tool will be on center line.
15. Use correct cutting tool and do not start roughing cuts from either end. Work toward each end to true up on turning or from the center out on face plate work.
16. CAUTION - Belt wear or stretch has the effect of raising the minimum speed and lowering the maximum speed. For proper operation and safety, periodically check the minimum speed and adjust as required to reduce the minimum speed to its correct value.
17. Use low speeds for roughing and long or large diameter work. If pieces cause vibration, stop the machine and correct the cause.
18. For sanding, move tool rest back from work, apply light pressure and use same speed as for turning.
19. When turning large objects such as glued pieces for bowls, always operate lathe at low speeds.
20. Never use dull turning tools -- sharp tools prevent "grabbing" or the jerking of tools from operator's hand.
21. Take part measurement only with the work piece stopped.
22. Do not attempt to engage the spindle lock pin until the spindle is stopped. If leaving the machine area, turn it off and wait until all moving parts stop before departing.
23. Give the work you're doing your undivided attention. Looking around, carrying on a conversation and "horse play" are careless acts that can result in serious injury.
24. Make no adjustments except speed change with the spindle rotating and always disconnect power source when servicing in order to avoid accidental starting.
25. Use only Powermatic or factory authorized replacement parts and accessories, otherwise the warranty and guarantee are null and void.
26. 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 for any injury that may result from that use.

WARNING: Do not equip or use this machine with a motor larger than 2 horsepower at 1800 R.P.M. The use of a larger or higher speed motor voids the warranty and Powermatic holds itself harmless from any injury that may result.

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 spindle 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.

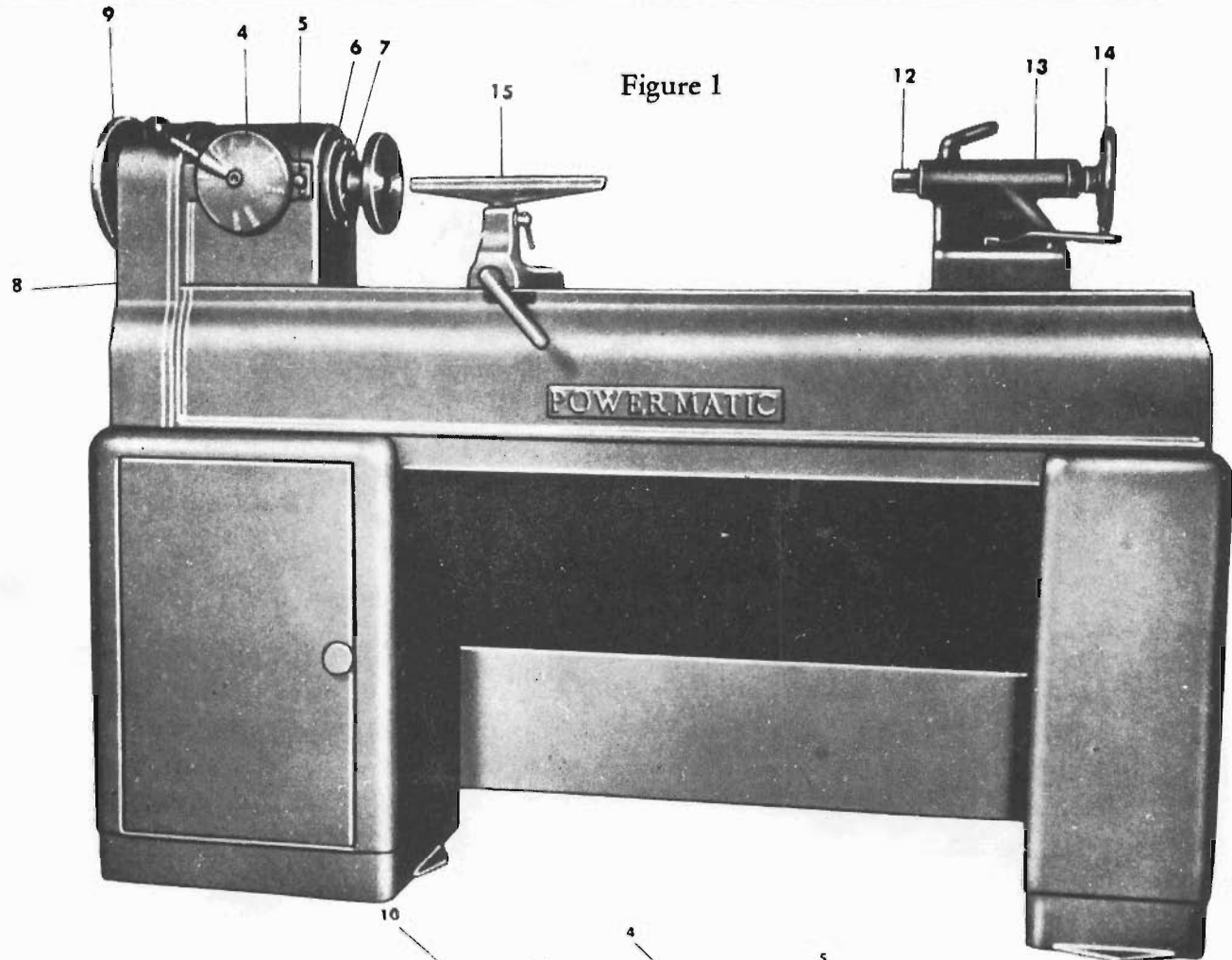


Figure 1

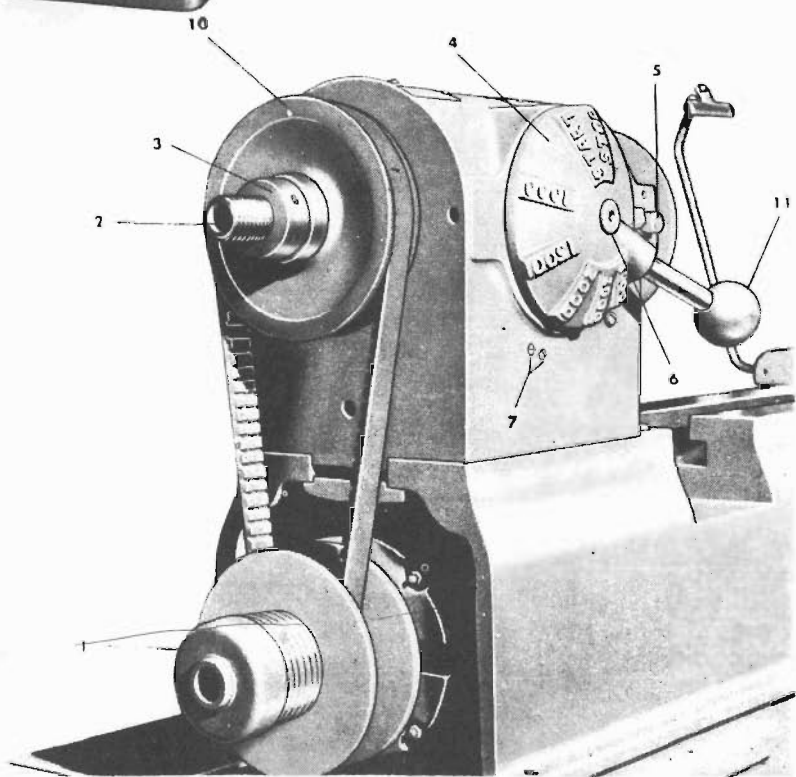
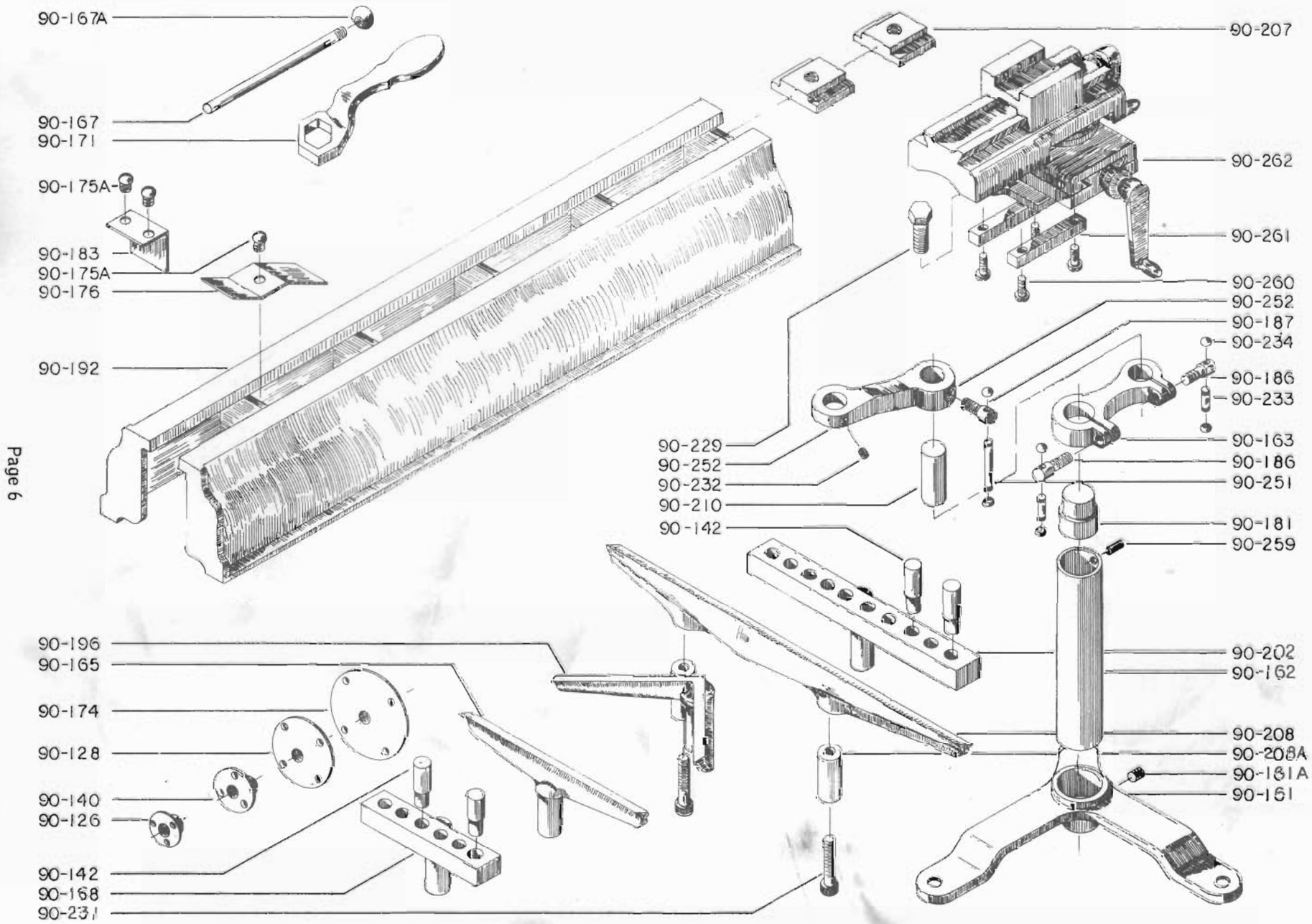
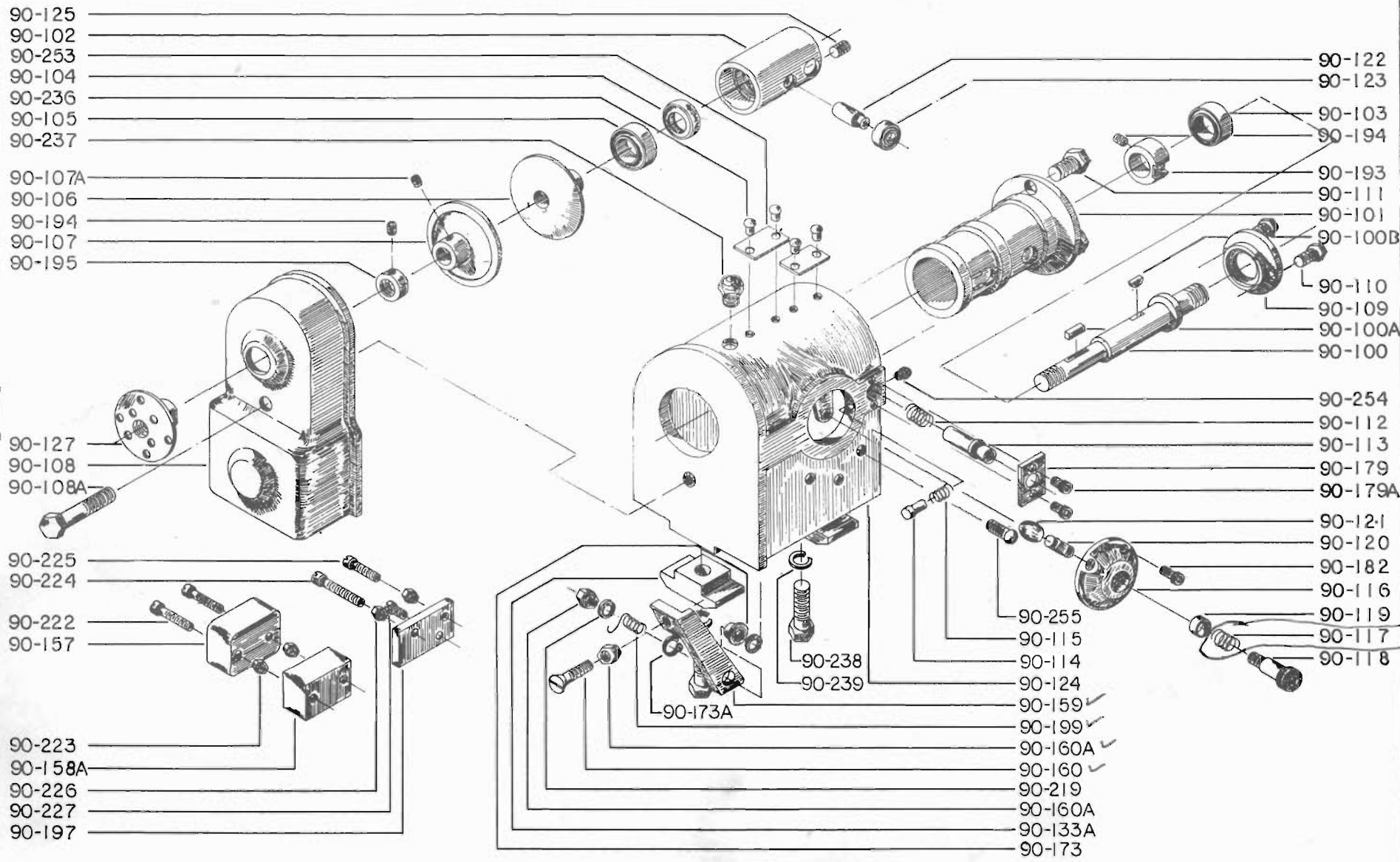


Figure 2



3868002 / FACE PLATE WRENCH



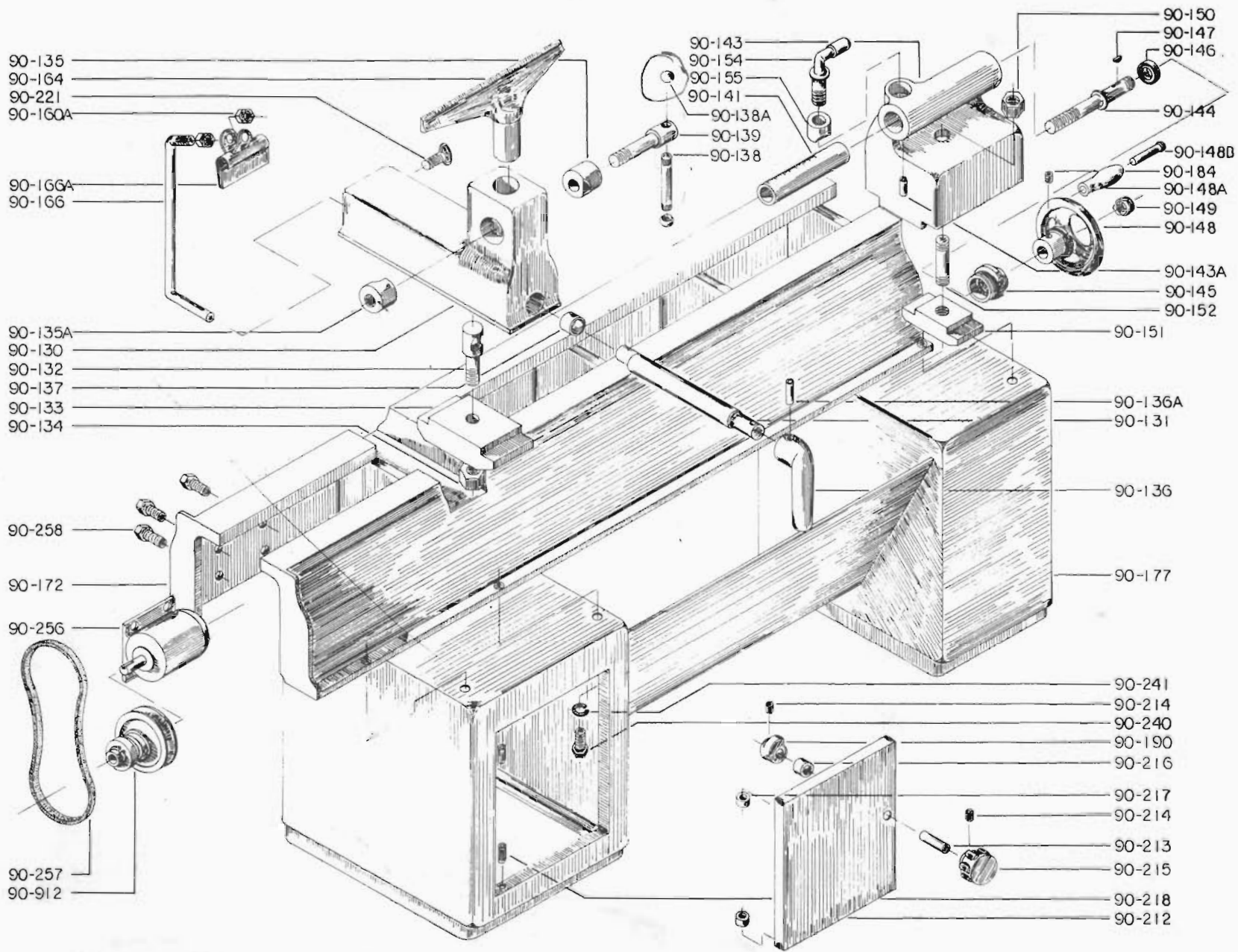
- 90-125
- 90-102
- 90-253
- 90-104
- 90-236
- 90-105
- 90-237
- 90-107A
- 90-106
- 90-194
- 90-107
- 90-195
- 90-127
- 90-108
- 90-108A
- 90-225
- 90-224
- 90-222
- 90-157
- 90-223
- 90-158A
- 90-226
- 90-227
- 90-197

- 90-122
- 90-123
- 90-103
- 90-194
- 90-193
- 90-111
- 90-101
- 90-100B
- 90-110
- 90-109
- 90-100A
- 90-100
- 90-254
- 90-112
- 90-113
- 90-179
- 90-179A
- 90-121
- 90-120
- 90-182
- 90-116
- 90-119
- 90-117
- 90-118
- 90-255
- 90-115
- 90-114
- 90-124
- 90-159
- 90-199
- 90-160A
- 90-160
- 90-219
- 90-160A
- 90-133A
- 90-173

90-173A

90-238
90-239

90-117



MODEL 90 LATHE

Part No.	Nomenclature	Quantity Required	Part No.	Nomenclature	Quantity Required
90-100	Spindle, Head	1	90-148	Handwheel, Tailstock 12-0	1
90-100A	Key, Spindle 3/16 x 3/16 x 1 1/2	1	90-148A	Handle, Handwheel	1
90-100B	Woodruff Key #810	1		Nylon Machine Handle	1
90-100C	Splitpin, 3/32 x 1/4	1	90-148B	Rivet, 1/4 x 3"	1
90-101	Sleeve, Spindle Bearing L-3	1	90-149	Nut, Handwheel Shaft 1/2-13 Lock & Stop	1
90-102	Sleeve, Variable Speed Slide L-5	1	90-150	Nut, Tailstock Clamp 5/8-11 x 1" Lg. Hex	1
90-103	Bearing, Inboard FAFNIR 207KLL	1	90-151	Clamp, Tailstock L-16	1
90-104	Seal, Grease 50189	1	90-152	Stud, Tailstock Clamp	1
90-105	Bearing, Outboard ND 88508	1	90-154	Screw, Quill Lock	1
90-106	Sheave, Sliding, Variable Speed L-6	1	90-155	Lock, Quill	1
90-107	Sheave, Ridgid, Variable Speed L-9	1	90-157	Starting Switch, Single Phase 80617DW	1
90-107A	Setscrew 3/8-16 x 3/8	1	90-158	Bracket, Switch Mounting L-27	1
90-108	Guard, Belt L-12	1	90-158A	Block, Switch Mounting	1
90-108A	Bolt 1/2-13 x 4" Hex Head	1	90-159	Cam, Switch Operating L-26	1
90-109	Cap, Bearing Sleeve L-10	1	90-160	Screw, Switch Operating Cam	1
90-110	Bolt 5/16-18 x 3/4 Hex Head	2		1/4-20 x 1" Flat Hd Soc	1
90-111	Bolt 5/16-18 x 1" Hex Head	2	90-160A	Nut, 1/4-20 Hex	3
90-112	Spring LP-75	1	90-161	Base, Tool Rest L-28	1
90-113	Plunger, Spindle Lock	1	90-161A	Setscrew 1/2-13 x 1/2	1
90-114	Pin, Plunger Lock 90-114	1	90-162	Column, Outboard Tool Rest	1
90-115	Spring, Plunger Lock Pin JS-4	1	90-163	Tool Rest Holder, Outboard & Swivel L-29	1
90-116	Cam, Variable Speed L-37	1	90-164	Tool Rest 6" L-22	1
90-117	Spring, Variable Speed Tension L-10	1	90-165	Tool Rest 12" L-23	1
90-118	Bolt, Variable Speed Cam	1	90-166	Rod, Blueprint Holder	1
	5/8-11 x 2 1/4 Shoulder Soc Hd.	1	90-166A	Clip, Holder Hunt Clip #2	1
90-119	Washer, Friction Lock 5/8 x 1/2 Fiber	1	90-167	Rod, Knockout	1
90-120	Handle, Variable Speed	1	90-168	Tool Rest, Metal Spinning	1
90-121	Knob 1 1/4 x 5/8	1	90-169	Pin, Metal Spinning Tool Rest	2
90-122	Pin, Variable Speed Shifting	1	90-170	Pin, Tool Rest	2
90-123	Bearing, Variable Speed Shifting	1	90-171	Wrench, Tail Stock L-15	1
	FAFNIR 201KT	1	90-172	Lathe Bed, w/Gap L-7	1
90-124	Housing, Headstock	1	90-173	Spacer Bushing, Cam Switch	1
90-125	Setscrew 5/16-18 x 3/4	1	90-173A	Lock Ring 1/2 Krupers	1
90-126	Face Plate 3" L-19	1	90-174	Face Plate 12" L-25	1
90-127	Face Plate 6" L-17	1	90-175	Mounting Plate	1
90-128	Face Plate 8" L-18 (Alum.)	1	90-175A	Screw, 1/4-20 x 1/2 Round Head	6
90-130	Casting, Tool Rest L-8	1	90-176	Dust Plate, Straight Bed	1
90-131	Shaft, Tool Rest Clamping	1	90-177	Base, Lathe	1
90-132	Stud, Tool Rest Locking	1	90-177A	Support, Base	2
90-133	Clamp, Bed L-16 (Ductile Iron)	1	90-178	Face Plate 8" L-24	1
90-134	Nut, Tool Rest Stud 5/8-11 Lock & Stop	1	90-179	Plate, Spindle Lock Plunger	1
90-135	Clamp, Tool Rest	1	90-179A	Screw 6-32 x 1/4 Socket Head	2
90-136	Handle, Tool Rest L-13	1	90-180	Lathe Bed, w/Gap 7' L-30	1
90-136A	Splitpin 3/16 x 1"	1	90-181	Plug, Outboard Tool Rest Column	1
90-137	Oilite Bushing 5/8 x 3/4 x 1 1/16	1	90-182	Screw, Speed Adj. 5/16-18 x 3/4	1
90-138	Handle UV100	1		Soc Hd (Modify)	1
90-138A	Knob, Handle UV101	2	90-183	Dust Plate, Gap Bed	1
90-139	Lockscrew	1	90-184	Setscrew 5/16-18 x 3/8	1
90-140	Face Plate 4" L-21	1	90-185	Splitpin 5/16 x 1 3/4	1
90-141	Quill, Tailstock	1	90-186	Lock, Offset Tool Rest Holder	1
90-142	Pin, Tool Rest	1	90-187	Lockscrew, Tool Rest Holder	1
90-143	Casting, Tail Stock L-2	1	90-188	Center Panel, Short Base	1
90-143A	Splitpin 3/16 x 1/2	1	90-189	Center Panel, Long Base	1
90-144	Screw, Quill Lead	1	90-190	Lock, Door B-12	1
90-145	Nut, Tailstock Shaft Housing	1	90-191	Lathe Bed, Straight 7' L-30	1
90-146	Bearing 603 1/2 NICE	1	90-192	Lathe Bed, Straight L-7	1
90-147	Woodruff Key #404	1	90-193	Sleeve Lock, Collar	1

90 LATHE PARTS LIST

Part No.	Nomenclature	Quantity Required	Part No.	Nomenclature	Quantity Required
90-194	Setscrew 5/16-18 x 1/4	3	90-234	Knob UV101	6
90-195	Spacer, Sheave Locking	1	90-236	Drive Screw 3/32 x 1/4	4
90-196	Tool Rest 90° L-33	1	90-237	Grease Seal #551	1
90-197	Block, Switch Mounting, Magnetic	1	90-238	Bolt 1/2-13 x 2" Hex Head	2
90-199	Spring, Single Phase Switch 90-20	1	90-239	Lock Washer 1/2	2
90-201	Pulley, Rigid, Motor D-27	1	90-240	Bolt 3/8-16 x 1" Hex Head	6
90-201A	Bronze Bushing 1 1/4 x 1 3/8 x 1 3/8	2	90-241	Lock Washer 3/8	6
90-201B	Key, Var. Speed Pulley 1200-112	1	90-242	Flat Washer 3/8	6
90-202	Metal Spinning Tool Rest 12"	1	90-243	Turning Tools, Set of 8	1
90-203	Pulley, Sliding, Motor D-41	1	90-244	Turning Tools, Set of 5 (Metal)	1
90-207	Lock, Top Bracket	2	90-245	3/8-Cup Center	1
90-208	Tool Rest 24" L-34	1	90-246	1" Spur Center	1
90-208A	Post, Tool Rest	2	90-247	3" Rossette Chuck (3" Face Plate Modified)	1
90-213	Shaft, Door Lock	1	90-248	Center Drift Rod	1
90-214	Setscrew 1/4-20 x 1/4	2	90-249	Ball Bearing Center	1
90-215	Handle, Door 1000-8 x 3/8	1	90-250	Center Drift Rod (Metal)	1
90-216	Spacer, Door Lock 900-65A 3/8 x 5/8 x 1/2	1	90-251	Handle, Lockscrew (5/16 x 5")	1
90-217	Spacer, Door Hinge 90-129 1/4 x 1/2 x 1/2	2	90-252	Casting, Offset Tool Rest L-35	1
90-218	Splitpin 1/4 x 1 1/4	2	90-253	Identification Plate	2
90-219	Flat Washer 1/4	2	90-254	Dust Plug (Rubber)	1
90-221	Thumbscrew 1/4-20 x 1/2	1	90-255	Screw 1/4-20 x 1 3/4 Truss Hd	1
90-222	Screw 8-32 x 1 1/4 Fill. Head	2	90-256	Motor	1
90-223	Nut 8-32 Hex	2	90-257	Belt, Pulley	1
90-224	Screw 6-32 x 1 1/2 Fill. Head	1	90-258	Bolt, Motor Mounting 5/16 Hex	4
90-225	Screw 6-32 x 1 1/4 Fill. Head	1	90-259	Splitpin 5/16 x 1"	1
90-226	Nut 6-32 Hex	2	90-260	Screw, 1/4-20 x 1" round Head	4
90-227	Screw 10-24 x 1/2 Rd Hd	1	90-261	Mounting Bar, Compound Slide Attachment	2
90-228	Micro-Switch BZ2GW822	1	90-262	Compound Slide Rest	1
90-229	Bolt 7/16-14 x 1 3/4 Hex Head	2	90-211	Insert, Live Center	1
90-230	Flat Washer 7/16	1	90-167A	Knob, 95 x 3/8	1
90-231	Bolt 3/8-16 x 3" Soc Head	2	90-133A	Clamp, Headstock L-16	2
90-232	Setscrew 3/8-16 x 3/8	1			
90-233	Handle UV100	2			

SUGGESTIONS FOR ORDERING PARTS

1. Determine the part number from the assembly drawing.
2. Determine the part name from the parts list.
3. Include BOTH the part's name and number on your order.
4. Include the model number, serial number and date of purchase of the machine.
5. PRINT your name and address on the order.

