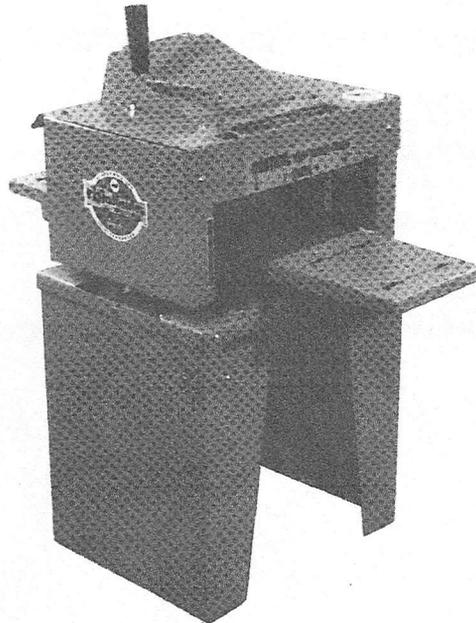




MODEL 408 PLANER
OPERATORS MANUAL FOR
(PLANER) (MOLDER) (SANDER)



**READ THOROUGHLY BEFORE
OPERATING**



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Manual #: 1187

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SPECIFICATIONS

OVERALL DIMENSIONS: Height34 3/4 in.
Width19 in.
Length16 1/4 in.
Weight161 lbs.

CUTS PER INCH: 47 @ 4200 RPM cutterhead speed

FEED SPEED: self feeding @ 22 ft./min.

POWER: 1 1/2 H.P., a.c. brushless electric motor, single phase, 23 amp peak, overload protected

PLANING CAPABILITIES: Max. Cutting Depth3/32 in.
Max. Width Of Cut8 in.
Max. Thickness Of Stock4 in.
Min. Thickness Of Stock3/16 in.
Shortest Planable Board9 in.

GENERAL INSTRUCTIONS

The Model 408 Planer is intended for both high use and hobby shop applications. It is designed for ease and simplicity of operation, maintenance, and adjustment with the operators' safety in mind. As with any new piece of equipment, the operator should become familiar with the Model 408 before attempting to operate it. To do this, this operators manual should be thoroughly read and understood.

SAFETY INSTRUCTIONS

FOR ALL POWER TOOLS

1. Read the operators manual carefully. Be thoroughly familiar with the operation of the machine. Know where the controls are and how to operate them.
2. Never allow children to operate equipment without proper supervision.
3. Keep work area clear of other persons.
4. Maintain a clean and uncluttered work area.
5. Never make adjustments to the machine while it is running.
6. Disconnect power supply before performing any adjustments to the machine.
7. Remove all working tools and equipment before starting machine.
8. Wear proper clothing. Avoid loose fitting clothing, long sleeves, long hair, gloves, neck ties, jewelry, watches, rings, etc.
9. Wear safety goggles, ear protection (ear plugs or covers) and mask in dusty operation.
10. Do not operate an electrical device in a damp or wet area to avoid electrical shock.
11. Maintain all safety guards.
12. Do not operate machine under the influence of medication, alcohol or drugs.
13. Never allow machine to operate unattended.
14. Do not overload machine. Follow the instructions in the operators' manual for safe operation.
15. Maintain machine in proper working order. Follow recommended maintenance procedures in the operators' manual.

ADDITIONAL SAFETY INSTRUCTIONS FOR PLANING

1. Do not use lumber with loose knots or splintered surfaces.
2. Check cutterhead screws for tightness after 5 minutes of operation when new and after changing knives.
3. Do not raise bed high enough to contact cutterhead knives.
4. Never operate planer with hood removed.
5. Do not stand directly in line with the front or rear of the machine. Always stand to one side.

ASSEMBLY INSTRUCTIONS

The Model 408 Planer is shipped partially assembled and requires a minimum of set-up assembly. Remove the shipping carton from the planer upon receipt and check to see that all parts were received without damage. After the carton is examined, the power switch and extension tables should be mounted to the machine.

CONTENTS OF 408 PLANER SHIPPING CARTON:

Item	Qty.
1. Planer Assembly	1
2. Extension Tables	2
3. Bed Height Adjustment Crank	1
4. Bolt Bag	1
5. Operators' Manual	1

NOTE: Damaged and/or missing parts are to be reported to the transportation carrier. Manufacturer is not responsible for shipping damage.

MOUNTING THE RB-69 POWER SWITCH AND RB-111 SWITCH LOCK

1. Remove jam nut from threaded stud on power switch.
2. Insert switch stud through the hole in the side of the left (facing infeed) skirt. The slot in the stud should be up.
3. Place switch lock on switch stud ("ON" side up) and secure with the jam nut.
4. Mount switch enclosure on left skirt with the carriage bolts, nuts and washers provided in the bolt bag. The rounded head of the bolts should be on the outside. (fig. 1)

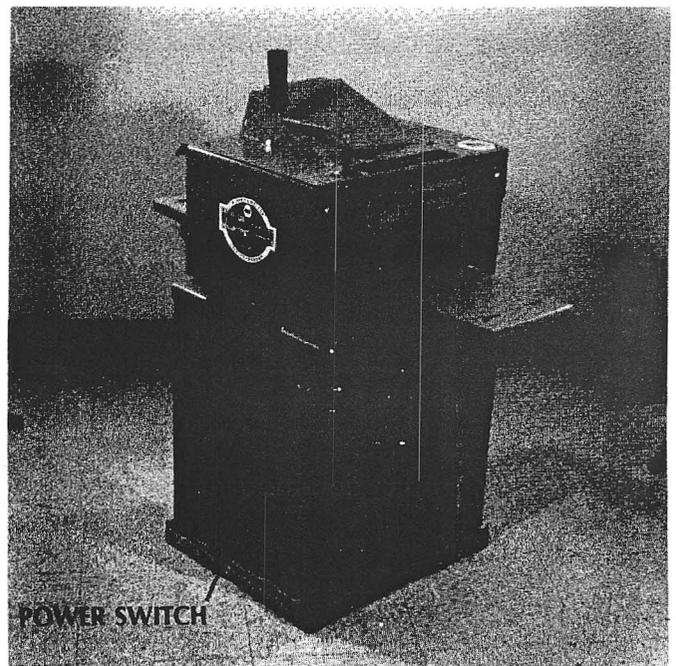


Fig. 1

MOUNTING RB-75 EXTENSION TABLES

1. Install two 5/16" bolts with lock and flat washers from the bolt bag in the threaded holes on both ends of the bed. Do not tighten. The bolts should extend enough from the bed to allow the mounting of the extension tables. (fig. 2)
2. Mount one of the tables by sliding it over the bolts on one end of the bed.
3. Tighten the 5/16" bolts until the tables are snug.
4. Adjust table height. The infeed extension table should be level with to 1/32" above the working surface of bed. The outfeed table should be level with to 1/32" below the bed surface.
5. Tighten the 5/16" bolts.
6. Check and adjust if necessary.

EXTENSION TABLE MOUNTING BOLTS

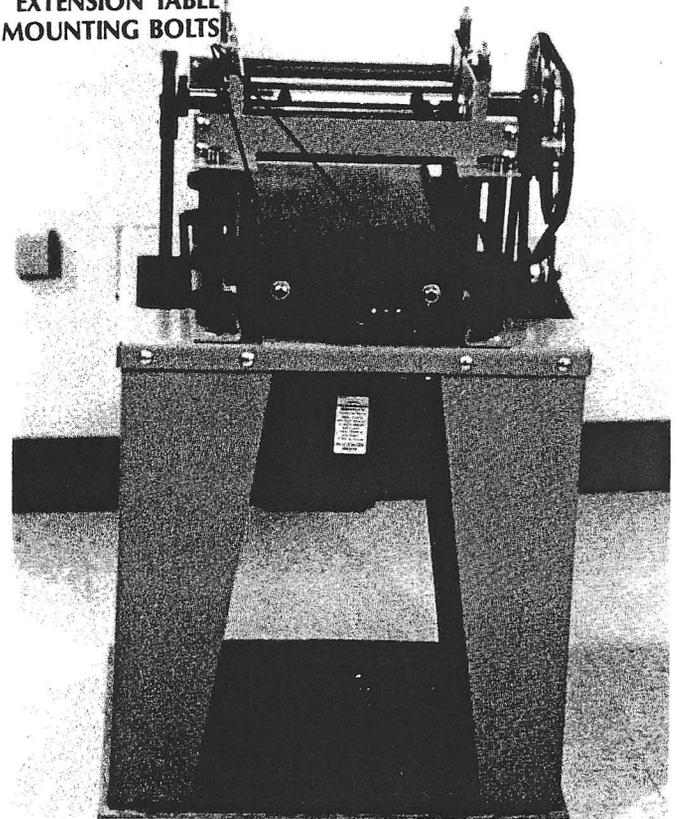


Fig. 2

POWER CONNECTIONS

Power for this machine should be supplied by a separate electrical circuit utilizing #12 or larger conductor and that is protected with a 20 amp time lag fuse. If it is necessary to use an extension cord, use only 3 wire extension cords with 3 prong grounding type plugs and 3 pole receptacles. For distances up to 100 feet, use #12 conductor cords. For distances up to 150 feet, use #10 cords. Be sure the power switch is in the "OFF" position before connecting the machine to electric power and that the electric current is of the same characteristics as stamped on the motor nameplate. All line connections should make good connection. Operating this machine on voltage that is lower than recommended will damage the motor.

GROUNDING INSTRUCTIONS

This tool must be grounded while in use to protect the operator from electric shock. The standard motor supplied with this machine is wired for 120 volt single phase power, is equipped with an approved 3 conductor cord and a 3 prong grounding plug to fit the proper grounding type receptacle. The green conductor in the cord is the grounding wire. Never connect the green wire to a live terminal. Do not remove the grounding prong from the power plug.

NOTE: Be sure the receptacle that is to be used is properly grounded. Have a certified electrician check the receptacle if you are not sure.

Adjustments may be made to the electric motor that will allow it to operate on 220 volt power. These adjustments should only be performed by a certified electrician.

OPERATING INSTRUCTIONS FOR PLANING

Before the machine is turned on, be sure that all nuts and bolts are tight and all wrenches have been removed. Turn the machine on and visually inspect the feed rollers for proper rotation. Remember to keep hands away from all moving parts. After the machine has been inspected, turn it off and execute the following procedure.

1. Place the board to be planed (9 in. or longer) under the infeed roller.
2. Turn the crank handle clockwise and raise the planer bed until the board contacts the roller.
3. Remove the board.
4. Turn the crank handle 3 1/2 turns up. This prepares the machine to perform a light cut on the board that will remove any high places.
5. Turn the machine on.

WARNING: DO NOT STAND DIRECTLY IN FRONT OF OR BEHIND THE MACHINE WHEN IN USE.

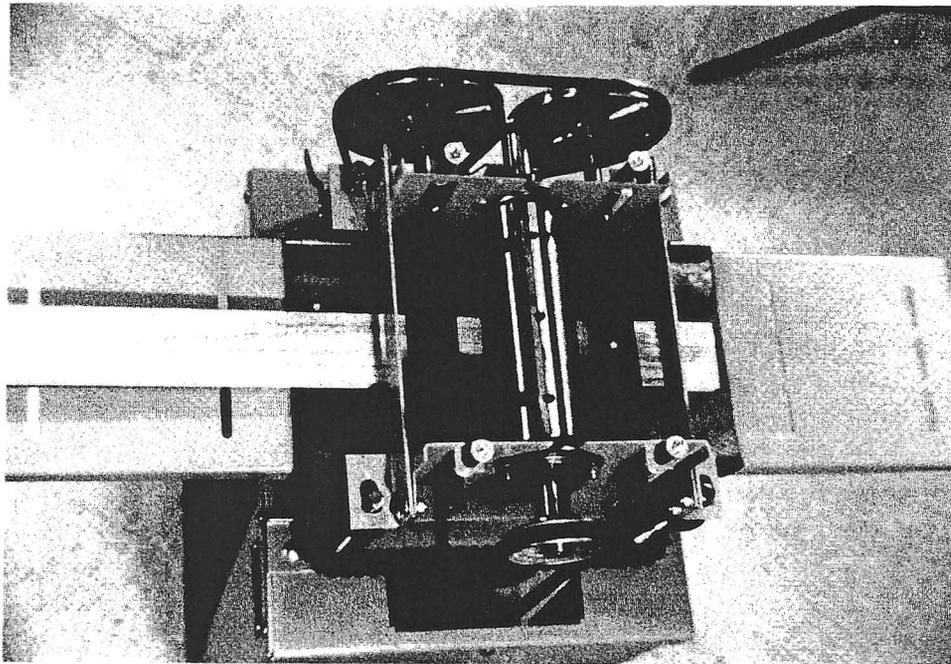


Fig. 3

6. Feed the board into the machine so that it travels in a straight line. (fig. 3)
7. Allow board to pass through machine. Remove board from outfeed extension table after it has stopped moving.
8. Adjust bed to the desired depth of cut with the crank handle and feed board through again.

1/4 Turn Of Crank Handle = 1/64 inch cut
1/2 Turn Of Crank Handle = 1/32 inch cut
1 Full Turn Of Crank Handle = 1/16 inch cut

NOTE: DO NOT PLANE MORE THAN 3/32 INCH (1 1/2 TURNS) IN ONE PASS.

NEVER OPERATE THIS MACHINE WITH THE HOOD REMOVED.

LUBRICATION

(figs. 4 & 5)

CORNER SCREW (RB-78) AND CRANK SCREW (RB-79)

Apply 2-4 drops of machine oil at the bed ears and bottom wear washers as required for ease of turning.

FEED ROLL BEARINGS (RS-57)

Apply 2-4 drops of machine oil on the ends of the roller shafts at the bronze bushings every 20 hours of operation. Lubricate more often during severe or intermittent use.

ELECTRIC MOTOR (RB-52) Lubricate electric motor according to instructions supplied with motor.

GEAR BOX (RB-87)

Grease the gearbox assembly every 100 hours of operation. Do not over-grease as excess grease that may escape from the assembly will cause belt slippage.

BED (RB-85) AND EXTENSION TABLES (RB-75)

Apply paste or paraffin wax to prevent oxidation and to ease feeding on bed and extension tables.

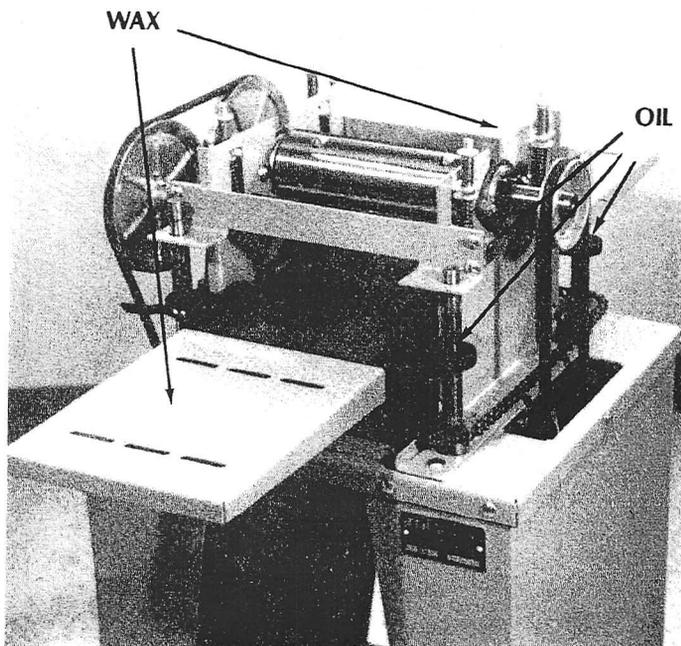


Fig. 4

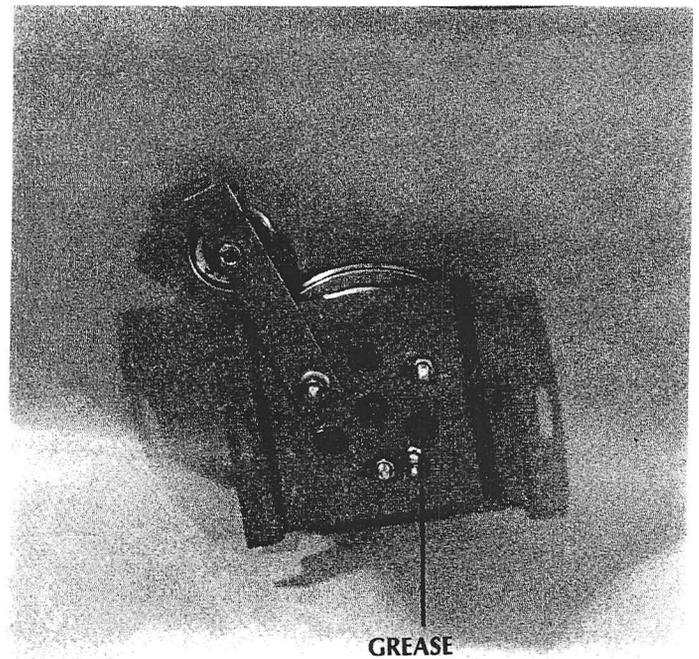


Fig. 5

ADJUSTMENTS AND REPAIRS

Disconnect machine from electric power supply before performing any adjustments to it. If unsure of the identity or location of a part, refer to the parts breakdown drawing and list for assistance.

CUTTERHEAD KNIVES: REMOVAL

1. Disconnect from electrical power supply.
2. Loosen and remove the four nuts securing hood. Remove hood.
3. Mark gibs and slots so they may be replaced in the same location when blades are installed.
4. Loosen the three set screws in one of the gibs approximately 1/4 in.
5. Using a flat piece of metal approximately 1/4" x 2", tap the gib down in the cutterhead slot.
6. Remove knife when free.
7. Repeat procedure for the other two knives in the cutterhead.

INSTALLATION:

1. Clean all gibs, slots and knives by wiping them with an oiled cloth.
2. Turn slot upward and insert gib on opposite side of slot from jackscrews with curved edge facing jackscrew.
3. Insert knife with the beveled edge toward the jackscrews and center the knife in cutterhead. (fig. 6)

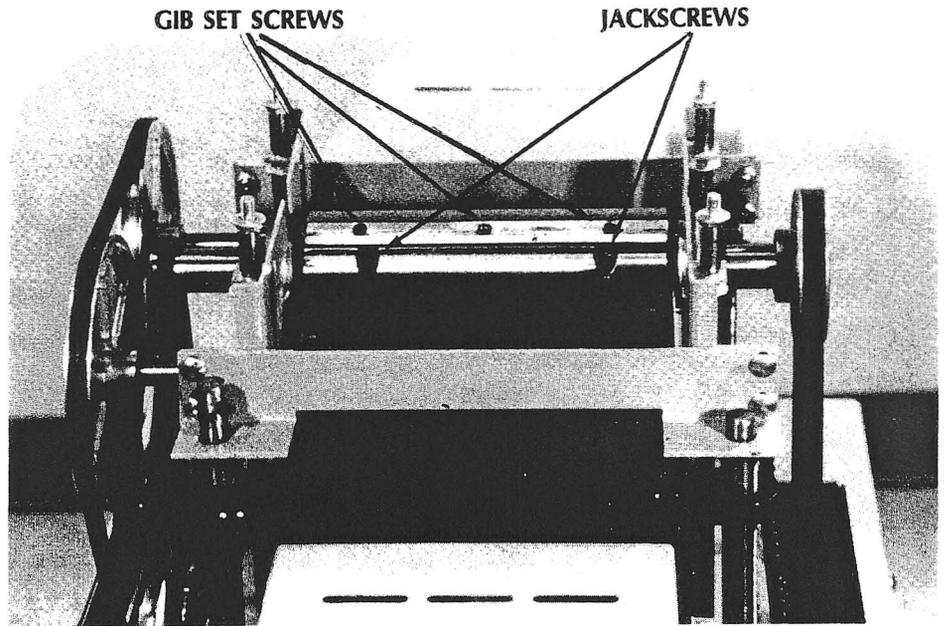


Fig. 6

NOTE: BE SURE THE JACKSCREWS ARE SCREWED INTO THE CUTTERHEAD FAR ENOUGH TO ALLOW THE KNIVES TO RECEDE BELOW THE MAXIMUM HEIGHT LEVEL.

4. Tighten set screws in gib slightly so that the gib holds the knife in place.
5. Position knife gauge over the knife with the bottom of the plunger on the edge of the knife. (fig. 7)
6. Adjust knife so the plunger is 5/32" below the top. The allen screw locks the plunger guide in position.
7. Raise the knife by turning the jackscrew counter-clockwise until the knife gauge plunger is level with the top of the plunger guide.

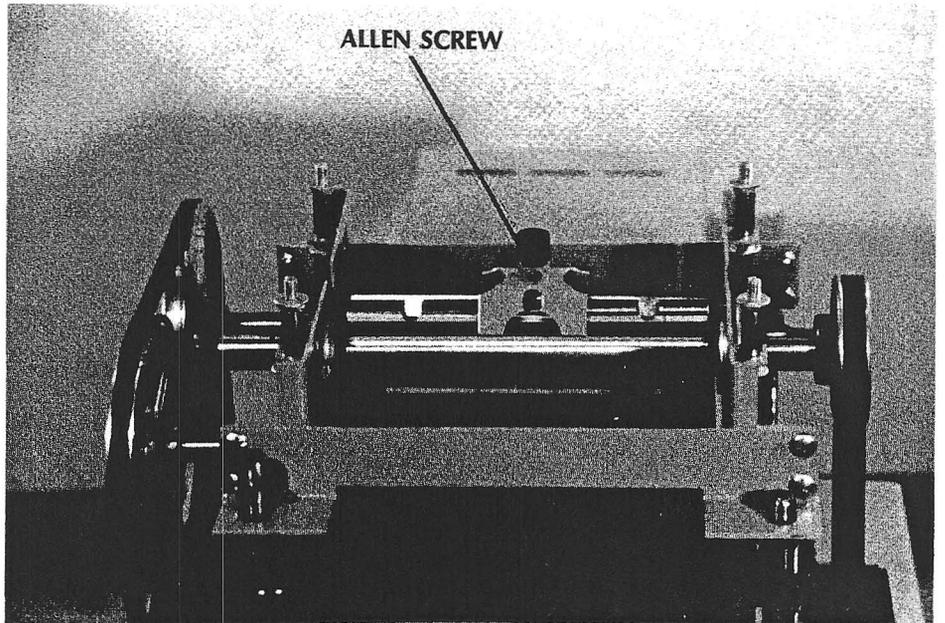


Fig. 7

8. Check the entire length of the knife for equal height.
9. If uneven, check tightness of gib set screws. If they are too tight, the gibs will bind the blades and restrict their movement.
10. When blades are of even height, tighten gib set screws and recheck knife height.
11. Repeat procedure for other blades. **Recheck all set screws for tightness before starting machine and after five minutes of operation. Be sure all fasteners are tightened and all tools are removed from machine prior to starting.**

GEARBOX ASSEMBLY V-BELT ADJUSTMENT

1. Loosen the two bolts fastening RB-87 gearbox assembly to skirt.
2. Slide gearbox assembly down to tighten belt.
3. Tighten the two mounting bolts while maintaining downward pressure on assembly.

ADJUSTING CUTTERHEAD DRIVE BELT TENSION

1. Loosen bottom nut on RB-47 threaded rod (#80 on parts break-down drawing).
2. To tighten belt, tighten nut on rod that is above RB-187 adjustment bracket. This should lower the motor adjustment bracket. (fig. 8)
3. When drive belt is of desired tension, tighten bottom nut on rod against the adjustment bracket.

RB-85 BED HEIGHT ADJUSTMENT

1. Place RB-84 crank handle on RB-79 crank screw. (fig. 9)
2. Turning handle clockwise raises bed. Counter-clockwise lowers bed.
3. Bed moves 1/16" with each complete turn. Maximum depth of cut for this machine is 3/32" (1 1/2 turns).

CLEANING RB-51-Z FEED ROLLERS

During extended periods of time and during moist wood operation, resin may accumulate on the feed rollers. To remove this build-up, wipe the rollers with a rag moistened with kerosene.

KNIFE SHARPENING

1. For major sharpening, the beveled edge of the knife should be ground to a 30 or 45 degree angle over the entire length of the knife to remove all nicks and notches.
2. For minor sharpenings between major sharpenings, use a hone on the flat side of the knife cutting edge over the entire length of the knife.

RB-85 PLANER BED LEVELING

1. Place the RB-84 crank handle on RB-79 crank screw.
2. Turn crank until the top of the corner screw ear on the bed is five inches from the top of the base.
3. Remove the RB-61 chain connector link and remove chain from sprockets. (fig. 10)
4. Adjust the corner screws until all ears are the same distance from the top of the base.

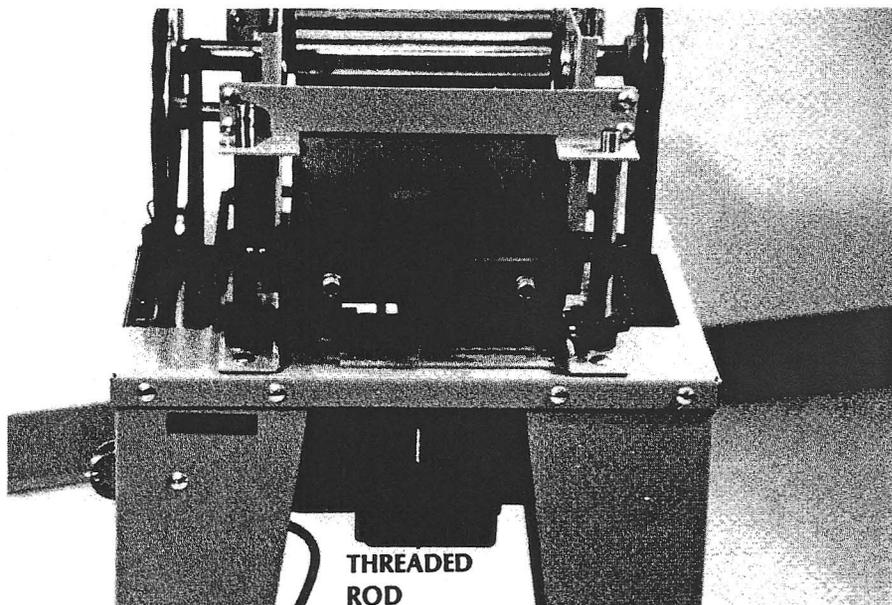


Fig. 8

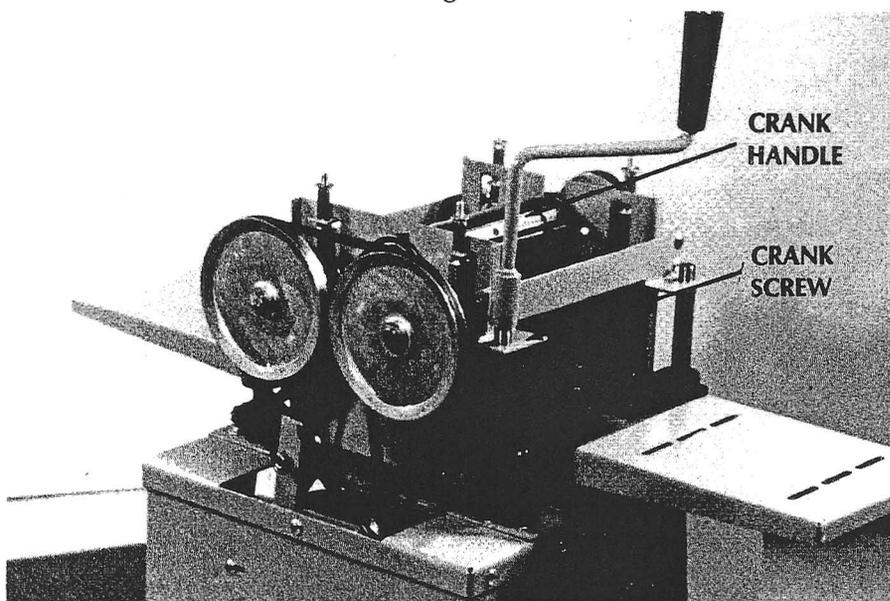


Fig. 9

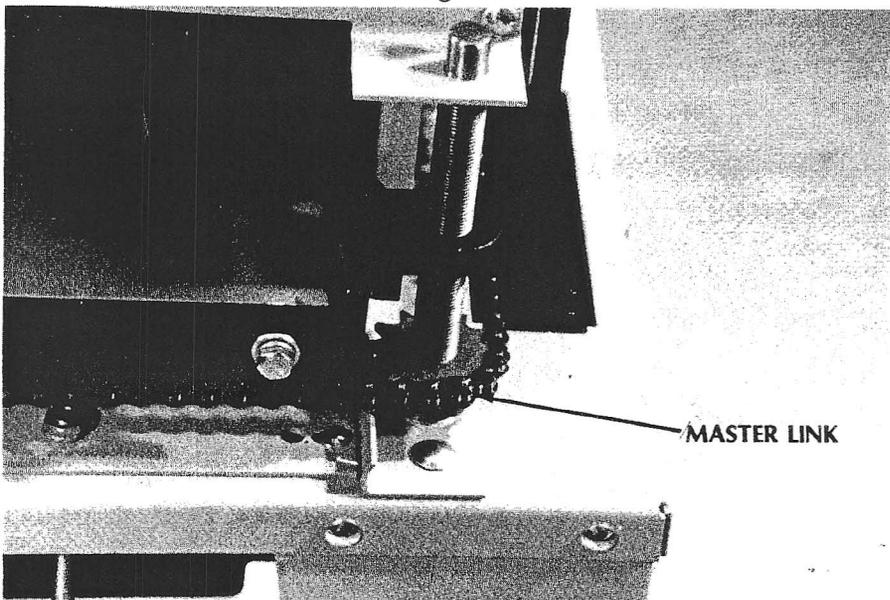


Fig. 10

5. Test downward movement of bed. Adjust the proper corner screw down until corner screw sprockets rest evenly on all four corners. Press downward on all corners to check for movement.
6. Check the distance from the cutterhead knives and bed on both left and right sides. If one side is more than 1/64" lower than the other, turn the corner or crank screws on the lower side clockwise to raise the bed (1/4 turn of screws = 1/64" rise of bed). Bed to knife distances should be the same on both sides.
7. Replace RB-61 chain when bed is level. Be careful not to move corner sprocket settings, as turning them will change the level of the bed.

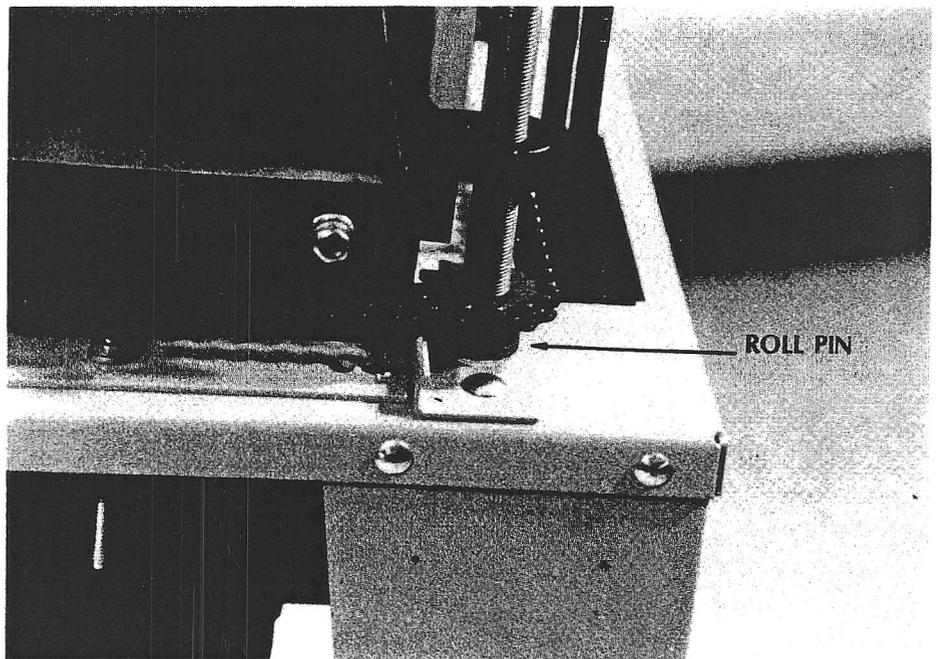


Fig. 11

RB-85 PLANER BED REMOVAL

1. Remove hood.
2. Install RB-84 crank handle and adjust planer bed to lowest position.
3. Remove connector link from RB-61 chain and remove chain.
4. Drive roll pins out of all RS-4 corner sprockets. (fig. 11)
5. Loosen and remove top bar mounting bolts. Remove both RB-83 top bars.
6. Remove corner screws.
7. Loosen and remove RB-64 drive belt from cutterhead pulley.
8. Remove RB-56 cutterhead drive pulley.
9. Loosen RB-59 bearing collar on drive belt side of cutterhead. Loosen and remove bolts from flанgettes holding the bearing.
10. Remove RBZ-205 threaded rods and RB-113 feed roller springs from ends of feed rollers.
11. Remove bolts connecting the bottom of the RB-80 sides to RB-184 base. (fig. 12)
12. Slide side outward until bed can be tilted and removed from planer.
13. Reverse procedure to install.

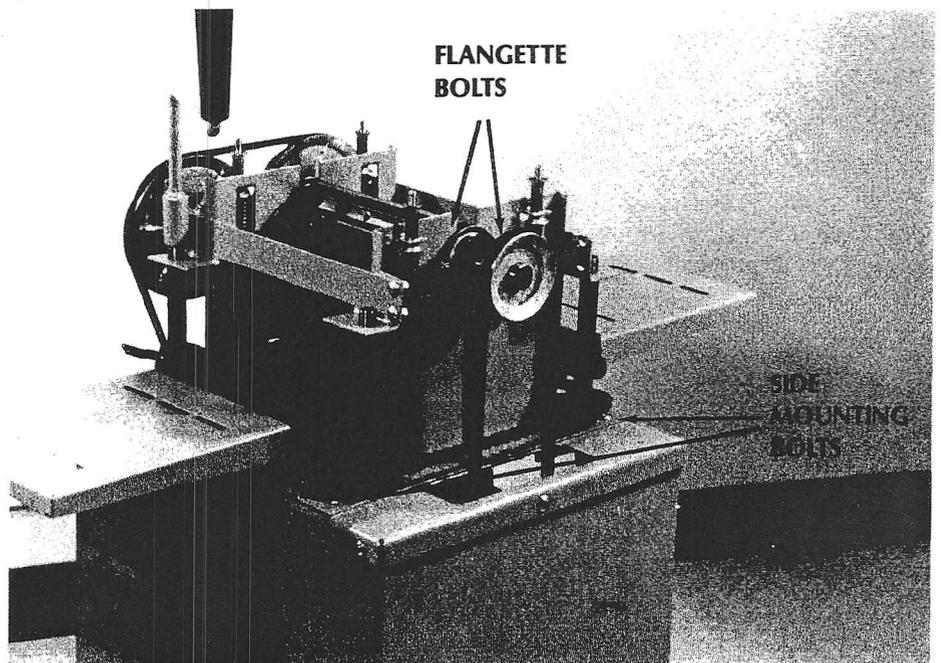


Fig. 12

RB-51-Z FEED ROLLER REMOVAL

1. Remove hood.
2. Remove RB-66 feed roller drive belt.
3. Remove dust collector assembly if necessary (outfeed roller removal only).
4. Remove RBZ-205 threaded rods and RB-113 feed roller springs. (fig. 13)
5. Loosen and remove RB-64 drive belt from RB-56 drive pulley.
6. Loosen RB-59 bearing collar on drive belt side of cutterhead. Loosen and remove bolts in RB-58 flangettes.
7. Loosen and remove RB-83 top bar mounting bolts on right side of both bars.
8. Loosen and remove RB-80 side mounting bolts from right side.
9. Slide right side outward until roller can be removed.
10. Remove roller and RS-57 bearings. Bearings may be pulled off end of shaft.
11. Reverse procedure to install.

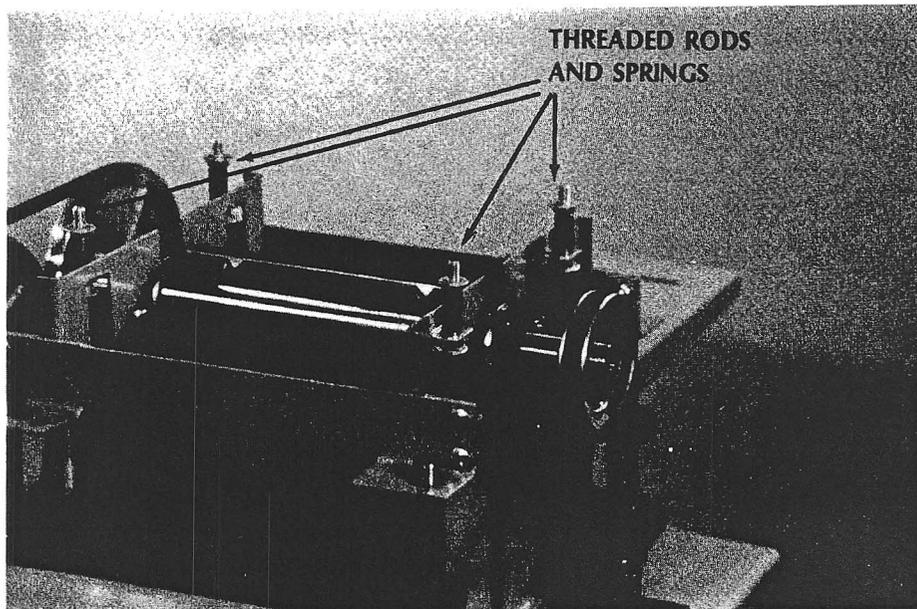


Fig. 13

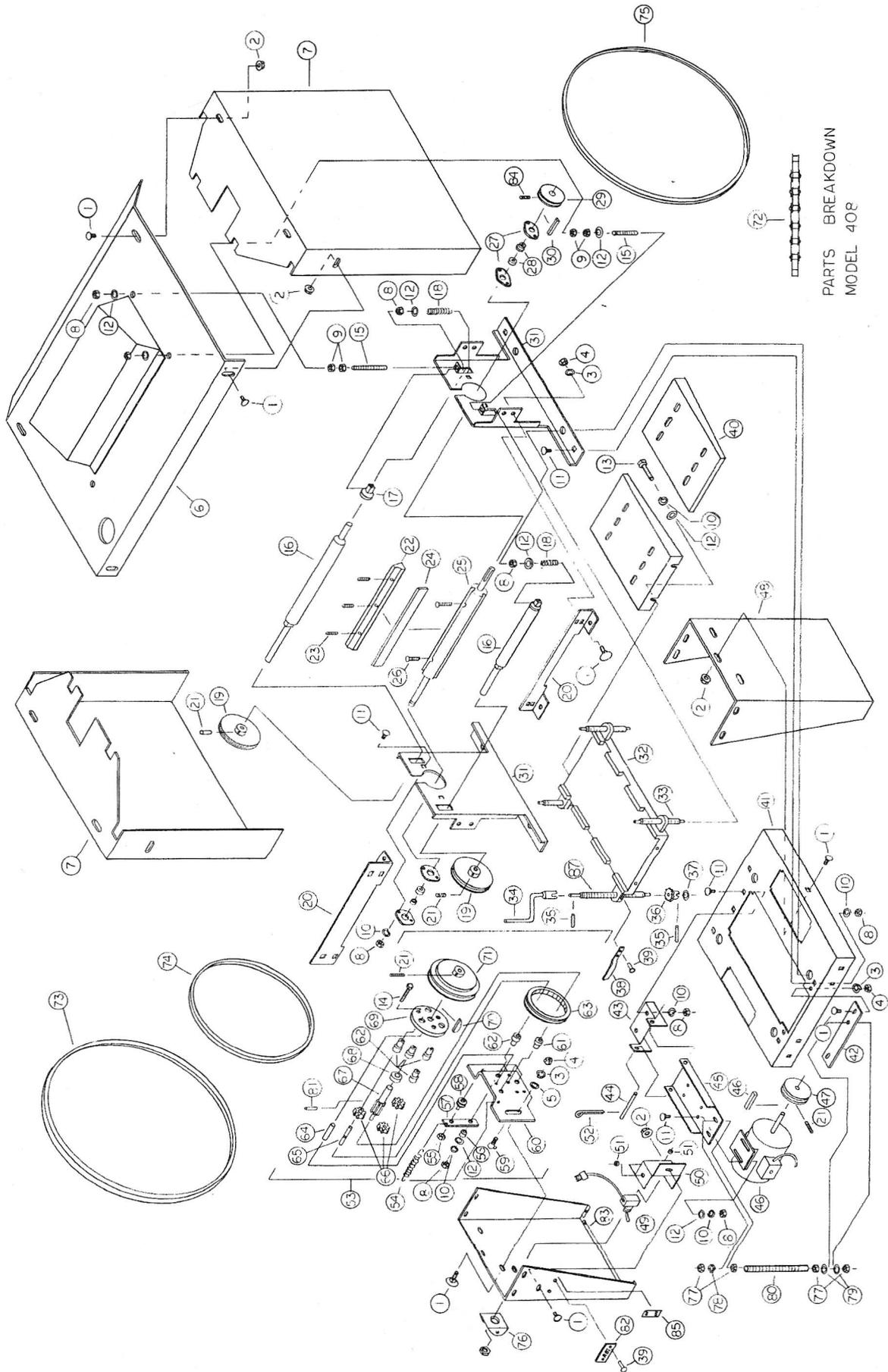
RB-78 CORNER SCREW REMOVAL

1. Install RB-84 crank handle.
2. Lower bed to lowest position.
3. Drive RZ-59 roll pin out of RS-4 sprocket in the corner screw to be removed.
4. Loosen and remove RB-83 top bar mounting bolts on bar that the screw to be removed passes through. Remove this top bar.
5. Grasp the corner screw with a pair of pliers or vise-grips and screw out of bed ear. If crank screw, use crank handle to remove from ear.
6. Reverse procedure to install.

HINTS TO REDUCE SNIPE

Snipe is a deeper cut at the ends of a board. This deeper cut usually extends 2 to 3 inches from the ends and can range from 1/64 to 1/8 inch in depth. It occurs when a board is held down by only one feed roller; for example, when it enters the infeed side of the planer but has not yet reached the outfeed roller. When an end is not held down, the planer knives tend to lift the board as they cut, raising it into the cutterhead and producing a deeper cut. This also occurs when the board exits the planer when it is held only by the outfeed roller. All planers tend to create snipe. R.B.I. planers have been designed to produce less snipe than most others within their price range. The following suggestions may reduce or eliminate snipe from your boards.

1. Butt boards as they are fed into machine. This routine will limit snipe to one end of first and last boards.
2. Make thinner cuts.
3. Saw the boards at an angle and plane. Square the ends after planing is completed.
4. Support the ends of long boards by roller stand.



PARTS BREAKDOWN
 MODEL 408

408 PLANER PART LIST

Key No.	Part No.	Part Description	Qty.	Key No.	Part No.	Part Description	Qty.
1	RB-99	1/4-20 x 5/8" Carriage Bolt	28	45	RB-185	Motor Pivot	1
2	RB-223	1/4-20 Lock Nut	16	46	RB-52	1 1/2 H.P. Motor With Key	1
3	RBZ-207	1/4 Split Lock Washer	12	47	RB-55	Motor Pulley	1
4	RBZ-208	1/4-20 Hex Nut	12	48	RB-188	Right Side Skirt	1
5	RB-177	1/4 Flat Washer	2	49	RB-69	Power Switch	1
6	RB-241	Hood Top	1	50	RB-108	Switch Enclosure	1
7	RB-109	Drive Guard	2	51	RB-101	Strain Relief Bushing	2
8	RZ-81	5/16-18 Hex Nut	26	52	RB-120	Cotter Key 3/32 x 1"	1
9	RZ-74	5/16-18 Jam Nut	8	53	RB-87	Gearbox Assembly	1
10	RZ-178	5/16 Lock Washer	17	54	RB-63	Idler Spring	1
11	RZ-179	5/16-18 x 3/4" Carriage Bolt	14	55	RZ-58	3/8-16 Hex Nut	1
12	RB-150	5/16 Flat Washer	14	56	RB-158	Idler Arm Spacer	1
13	RZ-181	5/16-18 x 1" Hex Head Bolt	4	57	RB-97	Idler Bracket	1
14	RBZ-203	5/16-18 x 2" Hex Head Bolt	3	58	RB-62	2" Idler Pulley	1
15	RBZ-205	5/16-18 x 3" Threaded Rod	4	59	RBZ-210	Grease Fitting	1
16	RB-51-Z	Feed Roller	2	60	RB-67	Gearbox Face Plate	1
17	RS-57	Feed Roller Bearing	4	61	RB-73	3/8" Flanged Bronze Bushing	1
18	RB-113	Feed Roller Spring	4	62	R-369	1/2" Flanged Bronze Bushing	7
19	RB-91	Feed Roller Pulley	2	63	RB-95	Internal Gear V-Sheave	1
20	RB-83	Top Bar	2	64	RB-94	Gearbox Spacer	3
21	RZ-83	1/4-20 x 1/4" Set Screw	8	65	RB-96	Internal Gear Shaft	3
22	RB-60	8 1/4" Aluminum Gibs	3	66	RB-68	Spur Gear	3
23	RB-98	3/8-24 x 1/2" Set Screw	9	67	RB-90-Y	Gearbox Drive Pinion	1
24	RB-13	Knife (Set Of 3)	1	68	RB-160	Bushing Pinion	1
25	RB-81-Z	Cutterhead	1	69	RB-89	Gearbox Back Plate	1
26	RZ-182	1/4-28 x 3/4" Socket Flat Head	6	70	RB-57	Key	1
27	RB-58	Flangette	4	71	RB-88	Gearbox Drive Pulley	1
28	RB-59	1" Bearing With Collar	2	72	RB-61	#41 Chain	1
29	RB-56	Cutterhead Drive Pulley	1	73	RB-66	1490 V-Belt, Roller Drive	1
30	RB-93	Cutterhead Drive Pulley Key	1	74	RB-65	1340 V-Belt, Reducer Drive	1
31	RB-80	Side	2	75	RB-246	2340 V-Belt, Motor Drive	1
32	RB-85	Planer Bed	1	76	RB-111	Power Switch Lock	1
33	RB-78	Corner Screw	3	77	RZ-73	3/8-16 Jam Nut	4
34	RB-84	Crank Handle	1	78	RZ-71	3/8" Lock Washer	1
35	RZ-59	1/4 x 1 1/8" Roll Pin	5	79	RZ-50	3/8" Flat Washer	2
36	RS-4	S-4 Corner Sprocket	4	80	RB-47	3/8-16 x 4" Threaded Rod	1
37	R-549	5/8" Machine Bushing	4	81	RB-71	3/16 x 1 1/4" Roll Pin	3
38	RB-74	Pointer	1	82	PS-36	Name And Serial No. Tag	1
39	RZ-52	Drive Screws	4	83	RB-189	Left Side Skirt	1
40	RB-75	Extension Tables	2	84	RZ-184	5/16-18 x 5/16" Set Screw	1
41	RB-184	Base	1	85	RB-100	Power Switch Decal	1
42	RB-187	Motor Adjustment Bracket	1	86	RB-241	Power Pack (Motor W/Key, Switch, Decal, Switch Lock)	1
43	RB-186	Pivot Attaching Bracket	1	87	RB-79	Crank Screw	1
44	RB-240	Hinge Rod	1				

TROUBLE-SHOOTING

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Feed roller pushes board out	Motor turning in wrong direction	Reverse motor rotation
Feed roller turns, but board does not feed	Obstruction under feed roller bearing Feed roller worn or damaged Build-up of resin material on rollers	Remove obstruction Replace Remove resin with kerosene
Feed roller turns with jerking motion	Feed roller belt slipping Attempting too deep of a cut Feed roller worn or damaged Main drive belt loose Small single drive belt slipping	Adjust feed belt tension or replace idler spring Reduce depth of cut Replace feed roller Adjust belt tension or replace belt Adjust or replace belt
Feed roller slips on board	Build-up of resin or material on roller	Clean roller
Board difficult to feed into machine	Attempting too deep of cut	Reduce depth of cut
Feed roller inoperative	Reduction drive belts loose, off, or broken Feed roller bearings seized Set screws in feed roller pulleys loose	Adjust or replace belts Replace bearings Align pulleys and tighten screws
ROUGH SURFACE FINISH		
Revolution marks in board	Knives not installed to uniform height	Adjust height of knives
Ridge or grooves	Nicks in knives	Resharpen knives
Large hunks torn from board	Cutting against grain	Feed other end of board first
Stripping or peeling	Lumber green	Allow to dry
Press marks in wood	Resin and material build-up on feed rollers	Clean feed rollers, reduce depth of cut
Deeper cut on the ends of the boards (snipe)	Board ends not supported Board too thin Making deep cuts Corner screws allowing vertical movement of bed	Support ends of boards with roller stand Use thicker boards Reduce depth of cuts Adjust corner screws
See snipe reduction section for further information.		
Cutterhead rpm slows when in use	Knives dull Making too deep of cut Undersized motor Low current Cutterhead drive belt slipping	Sharpen knives Reduce depth of cut Replace with more powerful motor Have electrician check electrical circuit Tighten or replace belt
Excess vibration	Knives improperly adjusted Knives missing or damaged Build-up on cutterhead Drive belt loose Planer head bearings failing or seized V-pulley, motor, or cutterhead loose	Adjust knives Replace knives Clean cutterhead Tighten belt Replace Tighten
Motor does not start	Burned fuse Thermal reset tripped	Replace fuse, use 20 amp time lag type Allow motor to cool, then push reset button, unplug motor vents if necessary

MOLDING ACCESSORY INSTALLATION INSTRUCTIONS

The 400-A Molding Head, 402 Bit Holder, 402-C Custom Knife Holder and 408-GB Guide Board Assembly are accessories available at extra cost.

TO INSTALL 400-A MOLDING HEAD AND 402 BIT HOLDER ONLY Perform steps A, B (1 or 2), C, D and F.

TO INSTALL 400-A MOLDING HEAD WITH 402-C CUSTOM KNIFE HOLDER Perform steps A, B (1 or 2), C, E and F.

NOTE: STEPS A, B (1 OR 2), AND C MUST BE COMPLETED BEFORE OPERATING THE 408 WITH MOLDING EQUIPMENT.

A. TABLE PREPARATION

1. Disconnect from electrical power source. Remove hood.
2. Place a 3/4" x 8 1/2" x 15" board under the cutterhead to prevent accidental raising of the bed into the bits or knives.
3. Center the board with the bed and secure using bolts or clamp to the table.

B-1. FACE MOLDING GUIDES

1. Obtain two 1" x 1" (or wider) x 20" boards.
2. Center the boards under the cutterhead and mark the feed roller locations under the face.
3. Cut 1/4" deep arc in both boards to allow clearance of the feed rollers.
4. Place guides under the cutterhead and at 90 degrees to it. Secure with clamps or bolts.

B-2. EDGE MOLDING GUIDES

1. Obtain two 1" wide boards that are at least 1/2" shorter than the board to be edge molded.
2. Center boards under cutterhead and mark feed roller locations on the edge.
3. Cut 1/4" deep arcs in both boards to allow clearance for the feed rollers.
4. Place guides under the cutterhead and at 90 degrees to it. Secure with clamps or bolts. (fig. 14)

NOTE: 408-GB Guide Board Assembly is available from your nearest dealer or from the factory. Pricing on request.

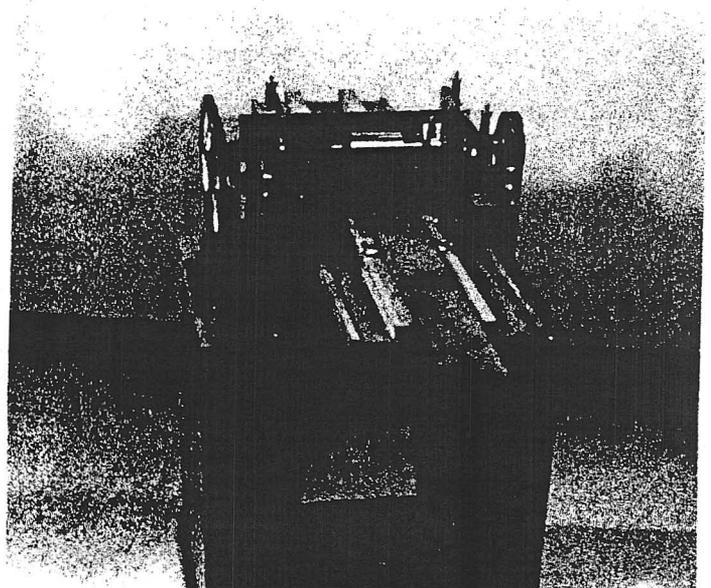


Fig. 14

C. 400-A MOLDING HEAD INSTALLATION

1. Disconnect from electrical power supply.
2. Remove hood.
3. Loosen set screws in both bearing collars.
4. Loosen the two bolts holding the bearing flangettes on both sides of the cutterhead. Remove the bolts on the motor pulley side.
5. Remove motor drive belt.
6. Lift motor drive end of cutterhead with bearing and flangettes out of planer side. Remove reduction drive belt and slide cutterhead through bearing and flangettes on reduction drive side. (CAUTION: KNIVES ARE SHARP) (fig. 15)
7. Set planing head aside.

NOTE: 400-AS Cutterhead Stand is available for holding cutterhead to prevent damage to knives.

8. The 400-A Quick Change Molding Head Assembly contains one 402 bit holder. If another bit holder or 402-C Custom Knife Holder is to be installed, they must be mounted on the molding head shaft before assembly.
9. Slide the molding head shaft into the bearing and flangettes on the reduction drive side of planer and install reduction drive belt.
10. Lower the drive pulley end of the molding head shaft with bearing and flangettes in place into the motor drive side of planer. (fig. 16)
11. Install flangette bolts. Tighten flangette bolts on both sides of cutterhead.
12. Align all belts and tighten collar set screws.
13. Attach motor drive belt.

D. BIT INSTALLATION IN 402 BIT HOLDER

1. Slide bit into slot in bit holder. Position bit in holder as shown in fig. 27.
2. Secure by tightening holding screw.
3. Repeat for the remaining cutterbits. (fig. 17)
4. Check knife to hood clearance by turning cutterhead by hand. Minimum clearance is 1/8".

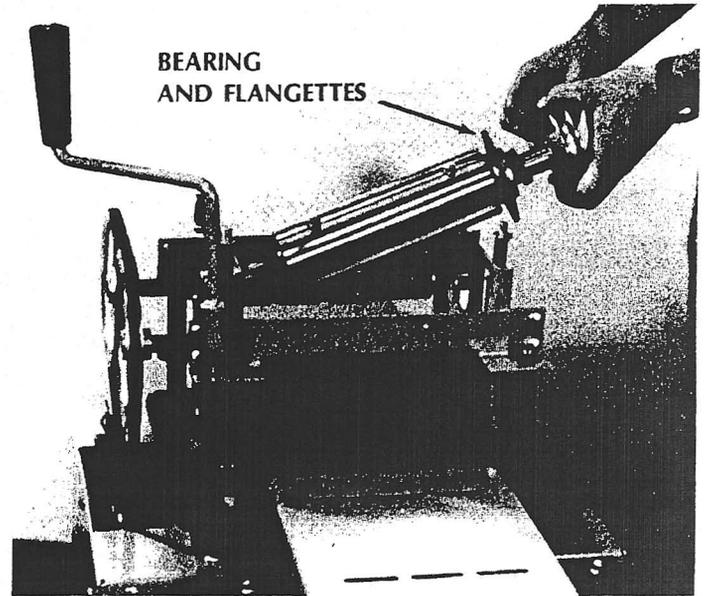


Fig. 15

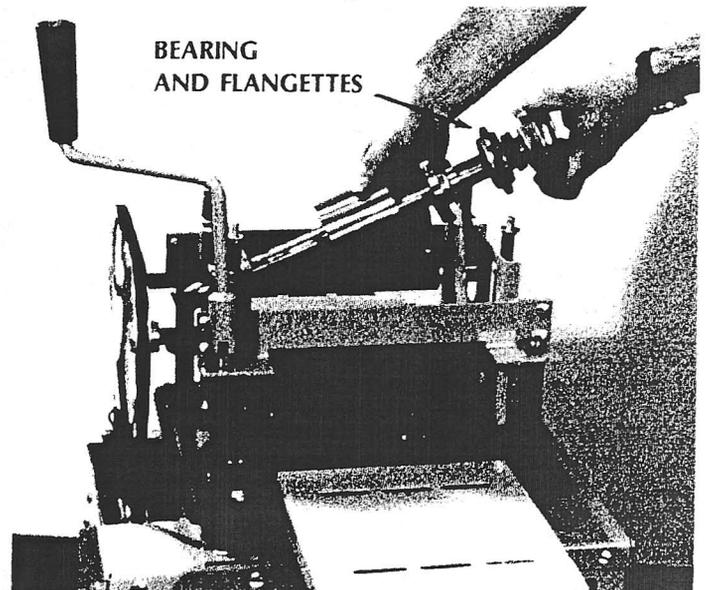


Fig. 16

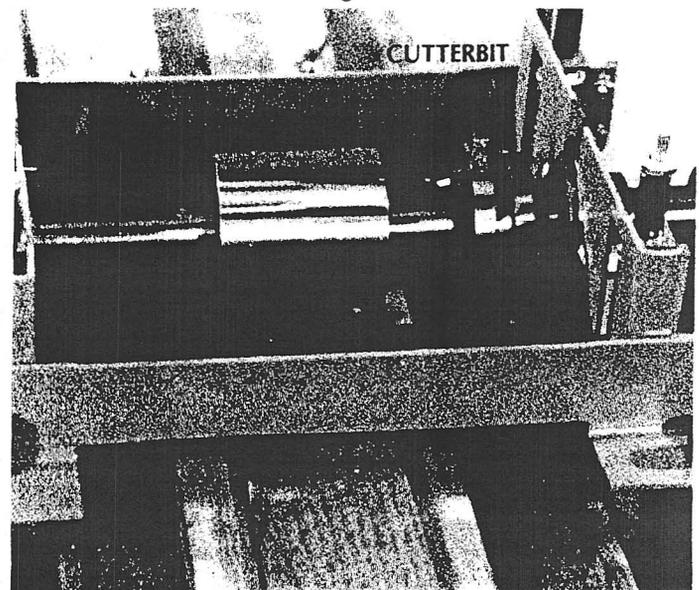


Fig. 17

E. CUSTOM KNIFE
INSTALLATION IN 402-C
CUSTOM KNIFE HOLDER

1. Place proper weighted gib in the knife holder slot with the radius facing away from the centerline of the molding head.
2. Slide knife into slot on the radius side of the gib. Position so that knife is as shown in fig. 18.
3. Tighten gib set screws. Be sure the knife is as far down in slot as possible.
4. Turn cutterhead by hand to check knife to hood clearance. Minimum clearance is 1/8". (fig. 18)



Fig. 18

NOTE: R.B.I. custom knives are balanced to fit in the 402-C Custom Knife Holder. If the knife is to be used in a holder other than the 402-C, additional balance weights, gibs, or other equipment may be required and must be specified when ordering.

F. POSITIONING BOARDS UNDER CUTTERBIT OR CUSTOM KNIFE

1. Disconnect from electrical power source.
2. Adjust guide boards to the thickness of the board to be molded and secure. Be sure the guide boards are square with (at 90 degrees to) the cutterhead.
3. Slide the board to be molded under the infeed roller until the leading edge of the board is at the point where the bit or knife is at its deepest cutting depth.
4. Raise the bed until knife or bit is close to the board to be planed. Rotate the molding head until the edge of the knife or bit is at its lowest possible position. With the back of the knife or bit touching the leading end of the board to be planed, adjust the bed height to attain the desired depth of cut. Use the end of the board as a gauge. Slide the bit or knife holder on shaft to adjust cutter alignment if necessary. Be sure all keys are in place and all set screws are tight before operating machine.

NOTE: Depth of cut must be great enough so that the board to be molded is held securely by pressure applied to it by the feed rollers.

5. Crank the bed down until the boards can be removed from under the feedrollers. Count the number or turns that are required.
6. Be sure all nuts, bolts and set screws are tight and all tools are removed.
7. Replace hood and connect to electrical power source.
8. Turn power switch on.
9. Raise bed to correct level by turning crank handle the same number of turns as in step 5.
10. Feed the board into machine.
11. Perform minor adjustments after first pass if necessary. Be sure to turn machine off and unplug it from electrical power before performing adjustments to it.

PART LIST FOR MODEL 408 MOLDING ACCESSORIES

When ordering parts, always state model number, part number, and part name as given in part lists. Do not use key numbers when ordering parts. See Ordering Parts section.

Key No.	Part No.	Description	Qty.	Key No.	Part No.	Description	Qty.
15	RB-400-A	QUICK CHANGE MOLDING HEAD tm ASSEMBLY		20	RB-402-C	CUSTOM KNIFE HOLDER ASSEMBLY	
1	RZ-185	Set Screw	1	16	RB-93	Key	2
2	RB-56	V-Pulley	1	17	RB-404	Custom Knife Holder	1
3	RB-93	Key	2	18	RZ-83	Set Screw	2
4	RB-58	Flangette	2				
5	RB-59	Bearing And Collar	1				
6	RB-401	Shaft	1				
7	RB-406	Bit Holder	1				
8	RZ-83	Set Screw	1				
9	RB-403	Set Screw With Cone Point	3				
10	BIT	Random Set (3 Pieces)	1 set				
14	RB-402	BIT HOLDER ASSEMBLY					
3	RB-93	Key	1				
7	RB-406	Bit Holder	1				
8	RZ-83	Set Screw	1				
9	RB-403	Set Screw With Cone Point	3				

Extra Bit Holders may be purchased.

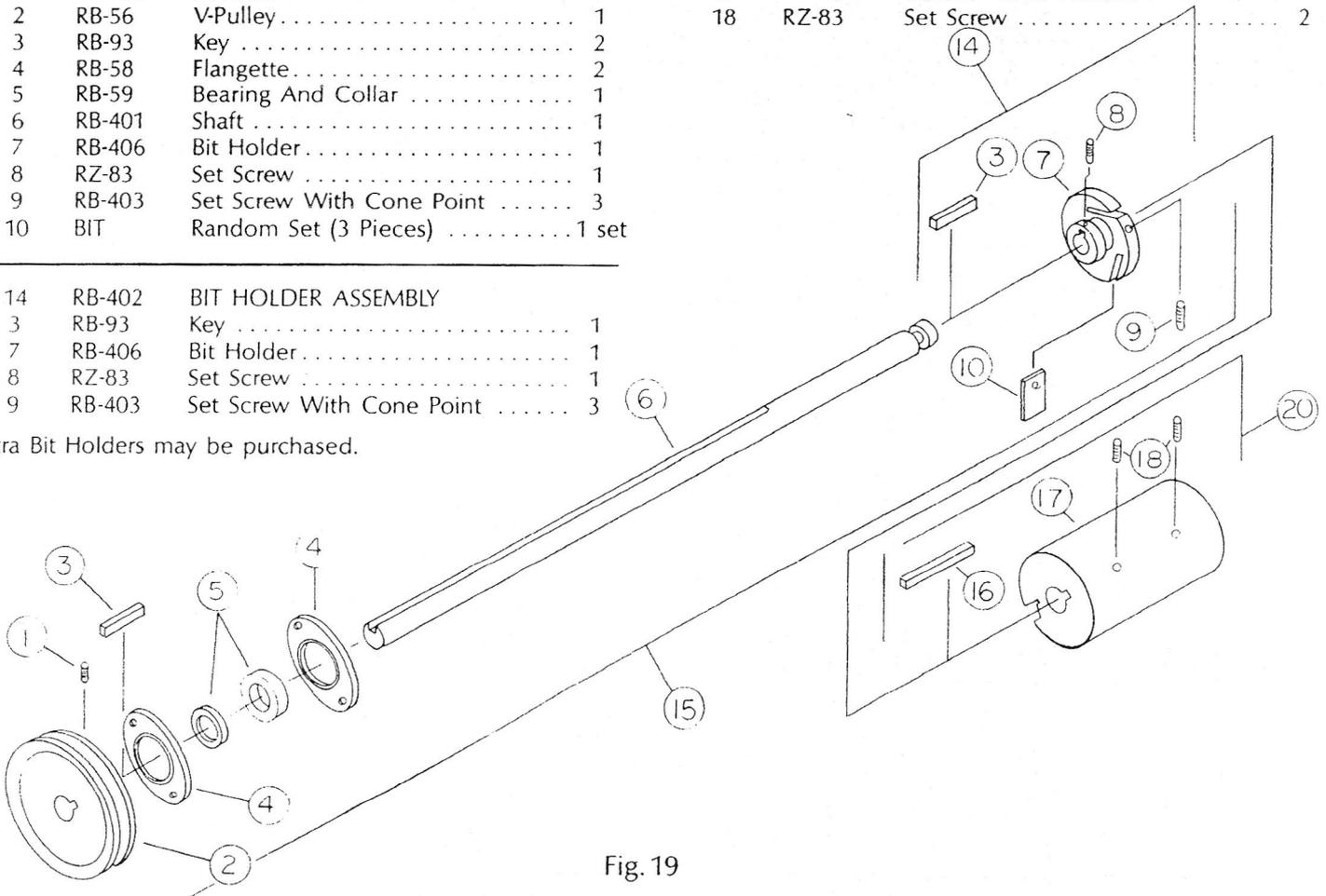


Fig. 19

RB-402-C Custom Knife Holders are not included in RB-400-A Molding Head Assembly and must be purchased separately. R.B.I. Custom Knives are balanced at the factory and are shipped with gibs included.

SANDING ACCESSORIES INSTALLATION INSTRUCTIONS

This RB-400-S sanding head is shipped without felt or sandpaper installed. Correct lengths of felt material and sandpaper are included in the sanding kit. Install the felt material first, then install the sandpaper over the felt.

FELT MATERIAL INSTALLATION

1. Unwind the felt material.
2. Wrap the material around the head and mark the point at which the end of the strip meets the rest of the strip. This distance marked should be the circumference of the sanding head.
3. Remove the material from the head and draw a diagonal line from the end of the strip to the wrap around point. Cut on the line.

4. Apply the material to the head, wrapping it in a spiral, starting with the diagonally cut edge. Realign the material after each complete wrap. After a few revolutions have been completed, tape the starting end of the material with masking tape. Wrap the end twice with the tape. Continue wrapping the material until the entire head is covered.
5. Trim the other end of the material to the edge of the head and tape with two turns of masking tape. (fig. 20)

SANDPAPER INSTALLATION INSTRUCTIONS

Sandpaper installation instructions are basically the same as felt installation instructions. Begin wrapping sandpaper 180 degrees from where felt wrap begins. Use half the width of the masking tape when taping ends of sandpaper.

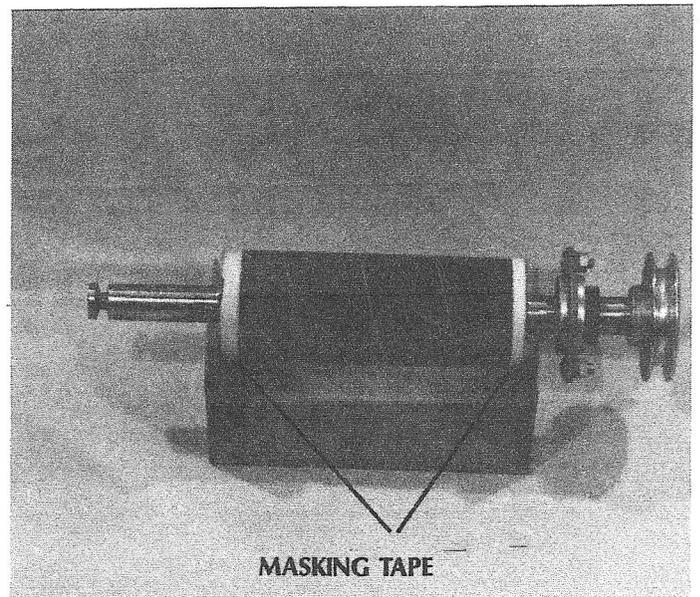


Fig. 20

SANDING INSTRUCTIONS

1. With the machine turned off, place the board to be sanded (at least 9" long) under the infeed roller.
2. Raise the bed until the board makes contact with the roller.
3. Remove the board.
4. Raise the bed 5/16" (5 turns of the crank handle). This will position the sanding head close to the board.
5. Turn the machine on.
6. Feed the board into the machine so that it travels in a straight path:
7. As the board passes under the sanding head, slowly raise the bed until the board contacts the head (approx. 1 to 3 turns).
8. Continue feeding board into machine until desired finish is attained. Do not raise bed more than .0075" (1/8 turn) per pass.

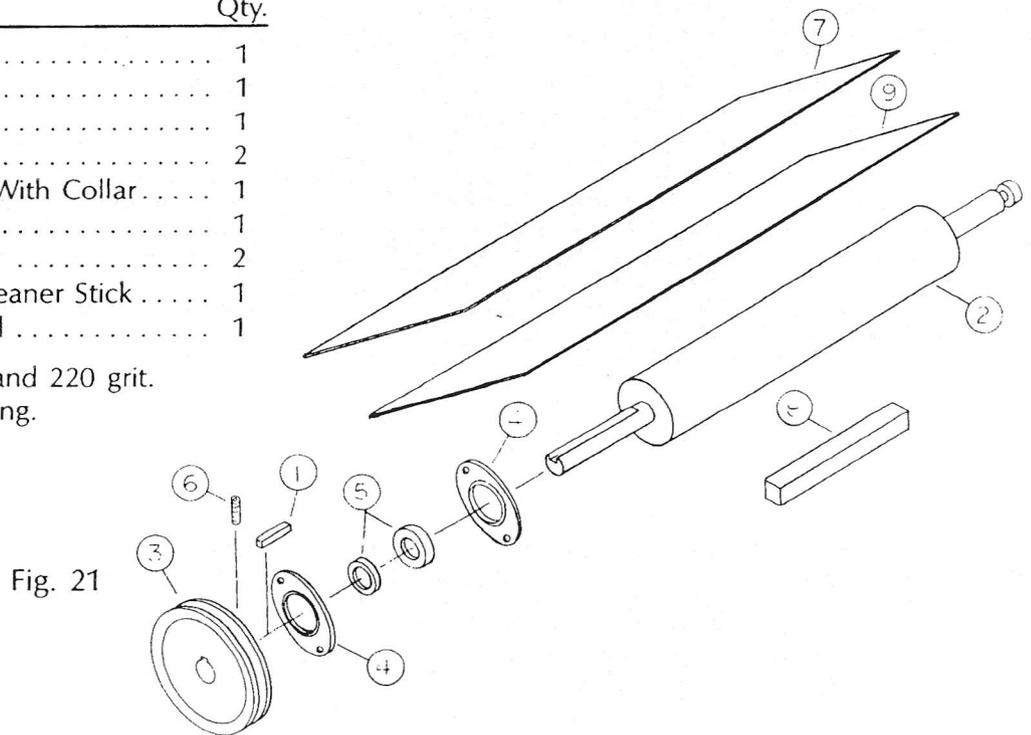
HELPFUL HINTS FOR SANDING

1. Boards to be sanded should be devoid of nails and other metal objects.
2. Some woods such as pine have large amounts of gum or resin that accumulates on the sandpaper very quickly. Because of this, sanding these types of wood will yield poor results and is not recommended.
3. Use the abrasive cleaner stick that is provided to remove material build-up from sandpaper.
4. Removing more than 1/16" of material with the sanding head will significantly shorten sandpaper life.
5. Do not make heavy passes with the sanding head. Light passes will result in smoother surface finishes.

RB-408-S SANDING KIT PART LIST

Key No.	Part No.	Description	Qty.
1	RB-93	Key	1
2	S-8-02	Head	1
3	RB-56	Pulley	1
4	RB-58	Flangette	2
5	RB-59	1" Bearing With Collar	1
6	RZ-83	Set Screw	1
7	S-8-03	*Sandpaper	2
8	S-8-12	Abrasive Cleaner Stick	1
9	RB-408-SFR	Felt Material	1

* Available in 80, 100, 150, 180, and 220 grit.
Specify desired grit when ordering.



WOODS AND THEIR CHARACTERISTICS

The following is a listing of the hardness, workability, and uses of some of the more popular woods.

SOFT WOODS

Basswood

Light, straight-grained, and of fine texture. Easy to work. Suitable for both turning and carving. Applications include picture frames, molding, furniture, and toys.

Cedar

Light, fine texture, and beautifully grained. Works and finishes easily. Popular material for moth resistant chests and closets. Also utilized in toys, furniture, and other uses.

Cypress

Soft and easily worked. Possesses rich, reddish-brown color which makes it particularly suitable for furniture. Extremely weather-resistant and often used in outdoor applications.

Fir

Stiff, strong, and of even texture. Has an orange-brown color. Suitable for toys and other articles of heavy construction.

Gum

Heavy, strong, and fine textured. Usually cross-grained and brown or yellow in color. Often twists or warps when exposed to weather. Mainly used for interior finish and small objects.

Poplar

Fine textured, light, and very soft. Gray to yellow in color. Easy to work but not durable. Often used in furniture that will not be subjected to rugged use.

Redwood

Light, fairly strong, and finishes well. Sapwood is whitish; hardwood is light red that turns brown when exposed. Very durable and often used in cabinet work.

White Pine

Very light and soft. Although quality varies greatly, it is usually quite durable. Resists boring insects if seasoned properly. Exceptionally easy to work with almost unlimited applications.

White Spruce

Light, stiff, and fairly strong. Easily worked and split. Often used as musical instrument sounding board material.

HARD WOODS**Ash**

Heavy, strong, and tough. Resembles oak, but coarser grained and easier to work. Becomes brittle with age. Accepts a fine finish and is suitable for all types of furniture.

Beech

Heavy, strong, and coarse textured. Works and finishes well. Has tendency to check and shrink when drying. Used extensively in furniture construction.

Birch

Heavy, tough, close grained, and very durable. Often stained to resemble black walnut or mahogany. Excellent for lathe turning and furniture construction.

Chestnut

Light and of medium hardness. Coarse textured but not very strong. Easy to saw, turn, and plane. Inclined to shrink, split, and check when drying. Used largely in furniture construction.

Mahogany

Light to dark reddish-brown. Fine grained with many cross grains. Easily worked and finishes easily. Often imitated and used frequently in furniture.

Maple

Heavy, strong, and very hard. Fine textured with wavy grains. Excellent for carving, turning, and scroll work. Used often in furniture and panelling.

Oak

Very heavy, strong, and durable. Subject to shrinking and checking. Produces smooth, attractive finish when quarter sawed. Used in many applications including furniture, carving, and common carpentry.

Walnut

Heavy, hard, strong, and smooth grained. Works well and accepts a fine polish. Used extensively in cabinet making, furniture, and veneering.

Yellow Pine

Light, medium hardness, with smooth and strong grains. Works easily and is very durable with many uses.

HOW TO ORDER REPLACEMENT PARTS AND ACCESSORIES

To speed delivery and reduce errors in orders, always include the following information when ordering:

1. Give complete identification of the machine.

A. Machine Name _____

B. Model Number _____

C. Serial Number _____

2. Completely Identify the part.

A. Part Number _____

B. Part Name _____

C. Return Old Part If Necessary _____

3. State Return Address

Address _____

Your Name (please print)

Address _____

Street

P.O. Box

Rural Route

City _____

State _____ Zip _____

Country _____

4. Send Order To:

Bushton Manufacturing

PO Box 127

319 S. Main

Bushton, KS 67427

By Phone:

(620)-562-3557

By Email:

customerservice@hawkwoodworkingtools.com