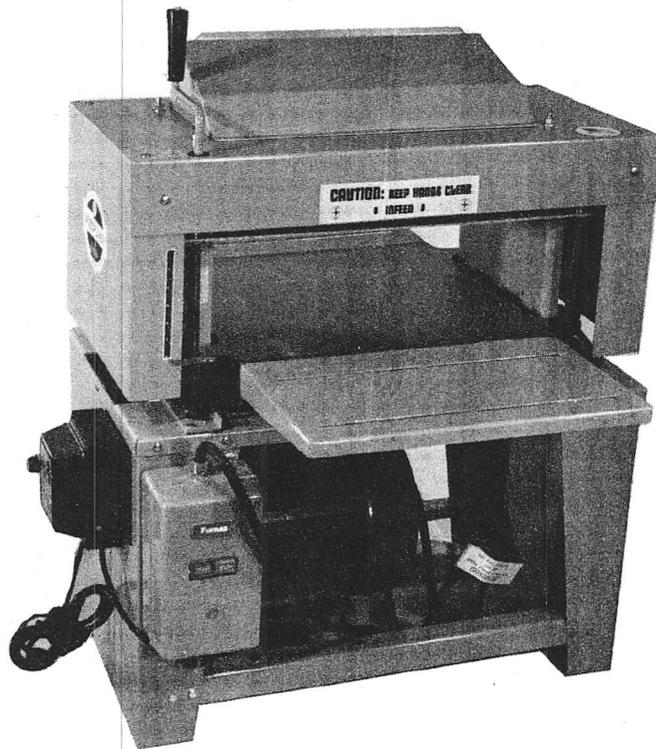


Bushton Manufacturing  
Maker Of  
Hawk Woodworking Tools

**OPERATORS MANUAL  
FOR MODEL 720**

**Wood  
Thickness  
Planer**



**READ THOROUGHLY BEFORE  
OPERATING**



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## You Can Reach Us

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## SPECIFICATIONS

OVERALL DIMENSIONS: HEIGHT .....	40 1/2"
WIDTH .....	33 1/4"
LENGTH .....	20 1/4"
WEIGHT (with standard motors) .....	485 lbs.
CUTTERHEAD SPEED: .....	5000 RPM
CUTS PER INCH (PLANING): .....	VARIABLE, 50 TO 250
FEED RATE: .....	VARIABLE, 3 TO 22 FEET PER MIN.
MOTORS (standard): CUTTERHEAD DRIVE .....	5 H.P., 230 volt, Single Phase A.C., 1725 RPM, Brushless, 26 Amp Peak, Overload Protected
FEED DRIVE .....	1/6 H.P., 90 Volt D.C., Gearmotor, 42 RPM, Permanent Magnet, 2 Amp Peak
PLANING CAPABILITIES:	
MAX. SINGLE PASS CUTTING DEPTH .....	5/16"
MAX. WIDTH OF STOCK .....	20 1/8"
MAX. THICKNESS OF STOCK .....	7 3/8"
MIN. THICKNESS OF STOCK .....	3/16"
MIN. LENGTH OF STOCK .....	10"

## INTRODUCTION

Thank you for selecting the RBI model 720 Wood Thickness Planer. As with all tools, the manual should be thoroughly read and understood before operating this machine. **Important warning statements are given where necessary to protect the operator. Always heed these warnings.** Instructions for planing, molding, maintenance, repair and troubleshooting are also given and a parts breakdown drawing and list are provided to aid in ordering parts and repairing the machine. Do not discard or lose this manual after it has been read. Keep it in a place where it will be easily found and refer to it in the future when necessary.

## 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 the 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 the power supply before performing any adjustments to the machine.
7. Remove all repair tools and equipment before starting machine.
8. Wear appropriate 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 the machine in a damp or wet area. This could produce an electrical shock.
11. Maintain all safety guards.
12. Do not operate the machine under the influence of medication, alcohol or other drugs.
13. Never allow the machine to operate unattended.
14. Do not overload the machine. Follow the instructions in the operators manual for safe operation.
15. Maintain the 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 the cutterhead gib cap screws for tightness after 5 minutes of operation when new and after changing knives.
3. Check the cutterhead gib cap screws for tightness before starting the machine if it has not operated for an extended period of time.
4. Do not raise the bed high enough to contact the cutterhead knives.
5. Never operate this machine with the hood removed.
6. Do not stand directly in line with the front or rear of the machine. Always stand to one side.

### ASSEMBLY INSTRUCTIONS

The model 720 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 switches and extension tables should be mounted to the machine.

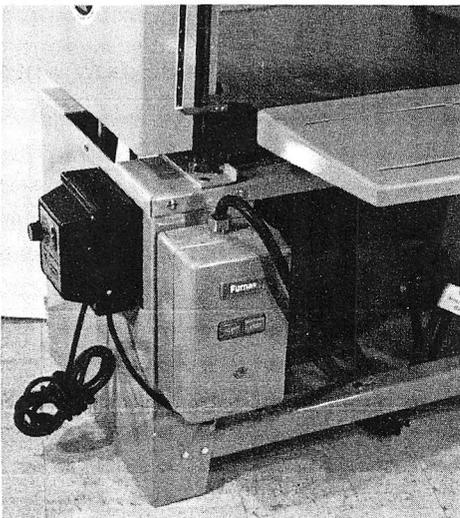
#### CONTENTS OF 720 PLANER SHIPPING CARTON:

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.

**WARNING:** BE SURE THAT THE MACHINE IS DISCONNECTED FROM ELECTRICAL POWER BEFORE MOUNTING THE POWER SWITCHES.

#### MOUNTING THE CUTTERHEAD DRIVE MOTOR STARTER SWITCH HOUSING (RB-293)



1. Notice the Mounting Bracket Plate (RB-294) fastened to the front of the L.S. Skirt (RB-270). (fig. 1)
2. Pull the Switch Housing (RB-293) out from under the planer and prepare it to be mounted.
3. Loosen the top bolt in the mounting bracket plate. Do not adjust the other bolts in the the plate.
4. Hang the switch housing on the top bolt in the mounting bracket plate.
5. Install two 1/4" -20 x 1/2" hex head bolts through the bottom holes in the housing and secure with whiz nuts.
6. Tighten the top bolt in the housing.

Fig. 1

## MOUNTING THE FEED DRIVE MOTOR CONTROLLER (RB-302)

1. Notice the four small holes in the side of the L.S. Skirt (RB-270). (fig. 2)
2. Position the Feed Drive Controller on the side of the skirt and align the mounting holes.
3. Fasten the controller to the skirt with four 10-32 x 7/16" socket head cap screws and secure them with four 10-32 hex nuts. (fig. 3)

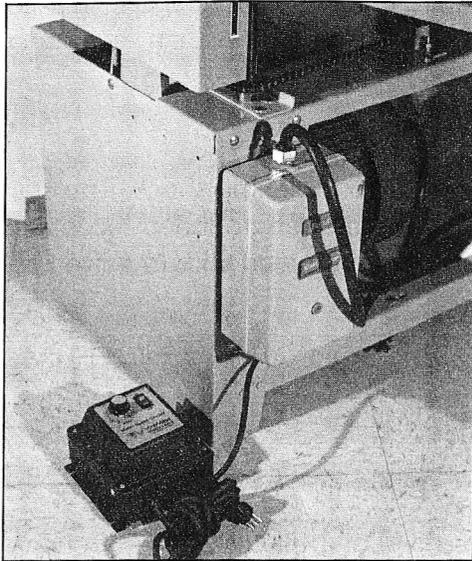


Fig. 2

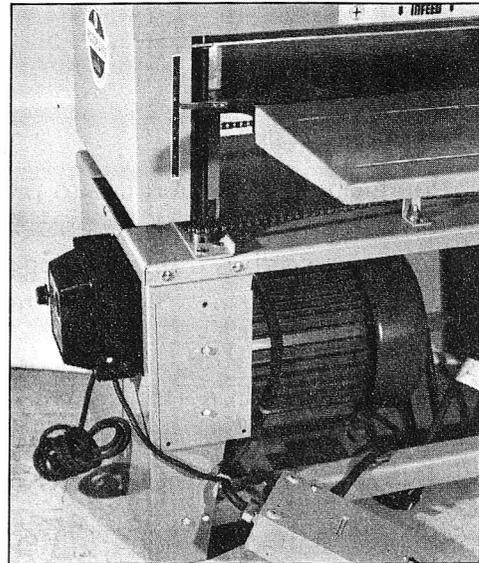


Fig. 3

## MOUNTING THE EXTENSION TABLES (RB-272)

1. Install two 3/8" bolts with lock and flat washers from the bolt bag through the Adjustment Bar (RB-300) into 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. 4)
2. Mount one of the tables by sliding it over the bolts on one end of the bed.
3. Tighten the 3/8" bolts until the tables are snug.
4. Adjust the height of the table. The infeed extension table should be level with or 1/32" above the working surface of the bed. The outfeed table should be level with or 1/32" below the bed surface. The height of the ends of the extension tables may be adjusted with the set screws located in the table mounting bracket. (fig. 5)
5. Tighten the 3/8" bolts.
6. Check and adjust if necessary.

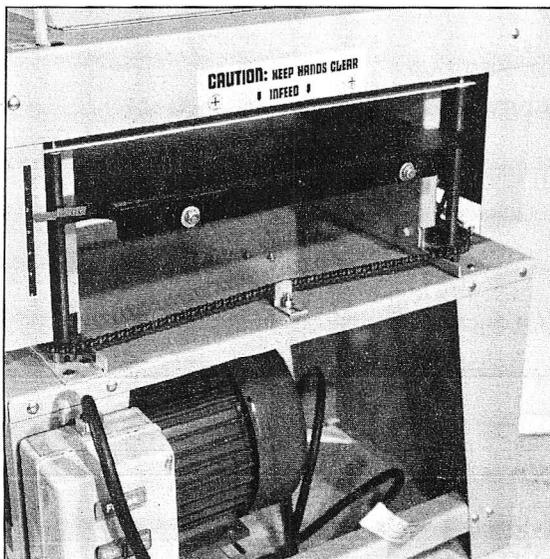


Fig. 4

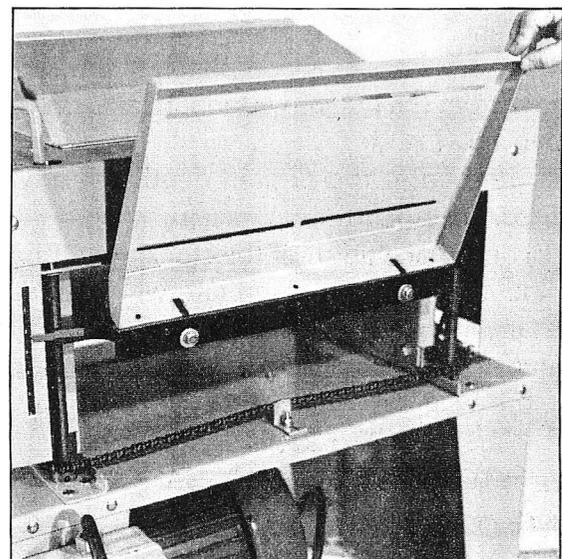


Fig. 5

## POWER REQUIREMENTS

This machine has two electric motors. The cutterhead drive motor requires a 220 volt single phase power supply protected by a 30 amp time lag fuse. If an extension cord is necessary, be sure it is no less than #10 gauge with 3 conductors. The feed drive motor requires a 110 volt power supply protected by a 6 amp time lag fuse. If an extension cord is necessary for this motor, be sure it at least #14 gauge with 3 conductors. All line connections must make good contact and operating either motor on less than recommended voltage levels will damage the motors.

## GROUNDING INSTRUCTIONS

This tool must be grounded while in use to protect the operator from electric shock. The standard motors supplied with this machine have male receptacles installed to fit the proper grounded receptacles. The green conductor in the power cords is the grounding wire. Never connect the green wire to a live terminal. Do not remove the grounding prong from the male receptacle.

**WARNING:** BE SURE THE RECEPTACLES THAT ARE TO BE USED ARE PROPERLY GROUNDED. HAVE A CERTIFIED ELECTRICIAN CHECK THE RECEPTACLE IF YOU ARE NOT SURE.

## OPERATING INSTRUCTIONS FOR PLANING

Before the machine is started, be sure that the gib cap screws and all other fasteners are tight. Be sure that all tools have been removed from the machine before starting.

**NOTE:** TURNING THE CRANK HANDLE CLOCKWISE (AS YOU LOOK DOWN AT IT) RAISES THE BED. TURNING THE HANDLE COUNTER-CLOCKWISE LOWERS THE BED.

1. With the machine turned OFF, slide one end of the stock to be planed underneath the infeed roller.
2. Turn the crank handle clockwise and raise the planer bed until the feed roller makes contact with the stock.
3. Turn the crank handle counter clockwise just enough to free the stock from the roller. Remove the stock from the machine.
4. Raise the bed 3 1/2 complete turns of the crank handle. This prepares the machine to make a light cut on the stock that will remove any raised portions (knobs or bumps) on the stock.
5. Start the cutterhead drive motor and the feed drive motor.

**WARNING:** DO NOT STAND DIRECTLY IN FRONT OF OR BEHIND THE MACHINE DURING OPERATION. ALWAYS STAND TO ONE SIDE.

6. Feed the stock into the infeed opening of the machine so that it travels in a straight line. (fig. 6)
7. Allow the stock to pass completely through the machine. Remove the stock from the outfeed extension table only after it has completely stopped moving.
8. Adjust the bed to the desired depth of cut with the crank handle and feed the stock through again.
9. Check the surface finish of the stock after it has passed through the machine and adjust the feed rate with the feed speed controller if necessary. Turning the controller knob counter-clockwise decreases the feed rate which should produce a smoother surface finish.

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

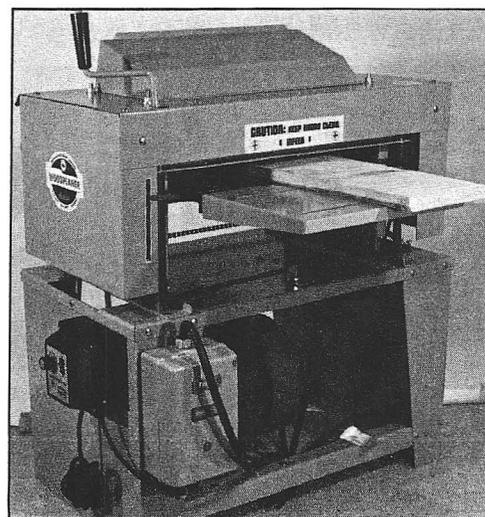


Fig. 6

**WARNING:** DO NOT PLANE MORE THAN 5/16 INCH (5 TURNS) IN ONE PASS. DO NOT OPERATE THIS MACHINE WITH THE HOOD REMOVED.

## LUBRICATION (FIG. 7)

### CORNER SCREW (RS-5-A) AND CRANK SCREW (RS-34-A)

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.

### BED (RB-262) AND EXTENSION TABLES (RB-272)

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

### CHAIN (RB-313)

Lubricate the chain every 40 hours or as needed with chain oil to prevent excessive wear of the chain and sprockets.

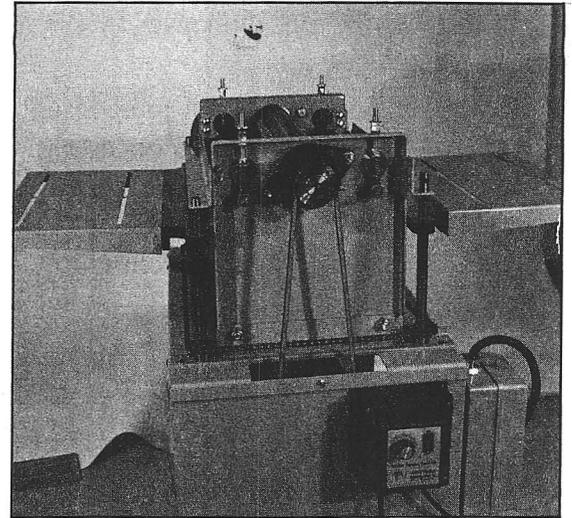


Fig. 7

## ADJUSTMENTS AND REPAIRS

**WARNING:** COMPLETELY DISCONNECT BOTH ELECTRIC MOTORS FROM ELECTRIC POWER BEFORE MAKING ANY ADJUSTMENTS OR REPAIRS TO THE MACHINE.

### PLANING KNIVES: REMOVAL

**WARNING:** BE EXTREMELY CAREFUL WHEN WORKING AROUND THE PLANING KNIVES AS THEY ARE VERY SHARP.

1. Loosen and remove the four nuts securing the hood to the planer sides and remove the hood.
2. Mark the knives, gibs and the slots that they are in so that they may be installed in the same slot.
3. Remove one gib at a time. Loosen and remove the three socket head cap screws that hold the gib in the cutterhead slot. (fig. 8)
4. Start two of the cap screws in the threaded holes in the gib and tighten them. This will raise the gib in the slot and unlock it. (fig. 9)
5. After both ends of the gib have been unlocked, grasp the end of the gib and lift it out of the slot. (fig. 10)
6. Repeat the procedure for the other gib in the slot.
7. After both gibs have been removed, lift the planing blade out of the slot.
8. Repeat the procedure for the other two blades.

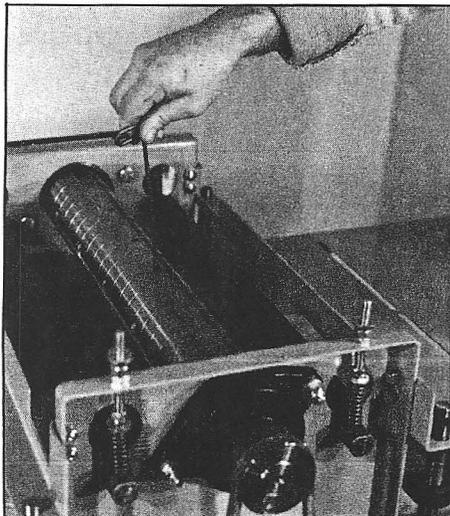


Fig. 8

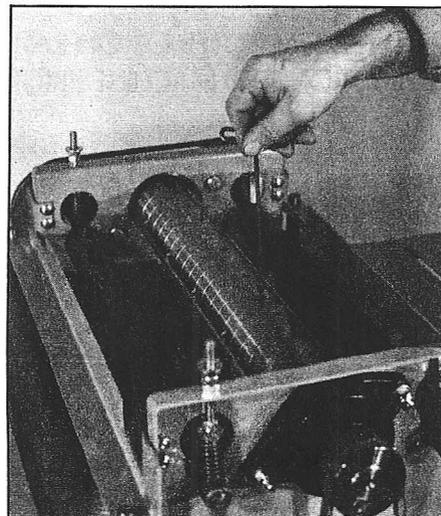


Fig. 9

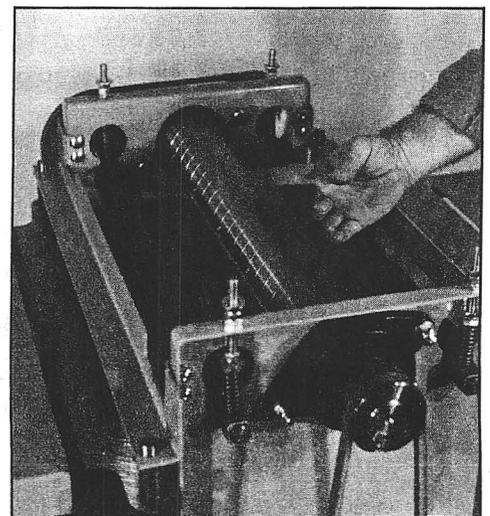


Fig. 10

## PLANING BLADES: INSTALLATION

1. Clean all gibs, slots and knives by carefully wiping them with and oiled cloth.
2. Install the blades one at a time. Place a blade in the cutter-head slot with the bevelled edge toward the jack-screws and center the knife in the slot. Be sure the jackscrews are lowered into the cutterhead far enough to allow the knives to recede below the maximum height level. (fig. 11)
3. Place two gibs in the cutterhead slot.
4. Install the three cap screws through the counterbored holes in the gibs into the threaded holes in the cutter-head. Tighten until they are snug. (fig. 12)
5. Repeat the procedure for the other blades.
6. After all blades are installed, check their height. If the height is not correct, use the jackscrews to raise or lower the knives. Raising (turning it counter-clockwise) the jackscrews raises the knife. (fig. 13)

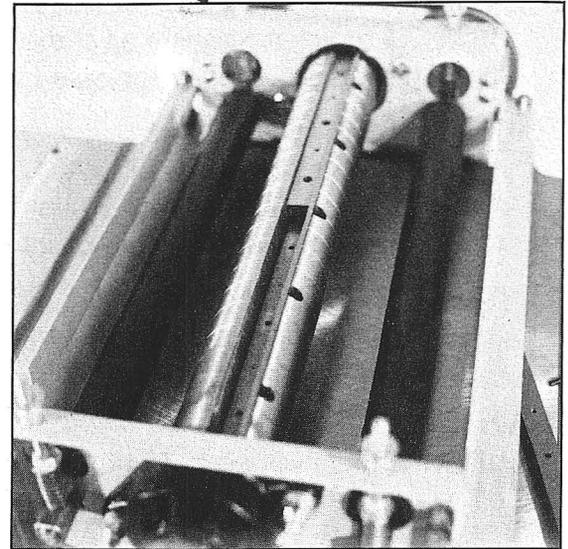


Fig. 11

7. When all blades are level and at the same height, finish tightening the gib cap screws.
8. Check the height of the knives again after all gib cap screws are tight and readjust their height if necessary.
9. CHECK ALL GIB CAP SCREWS FOR TIGHTNESS BEFORE STARTING MACHINE. CHECK

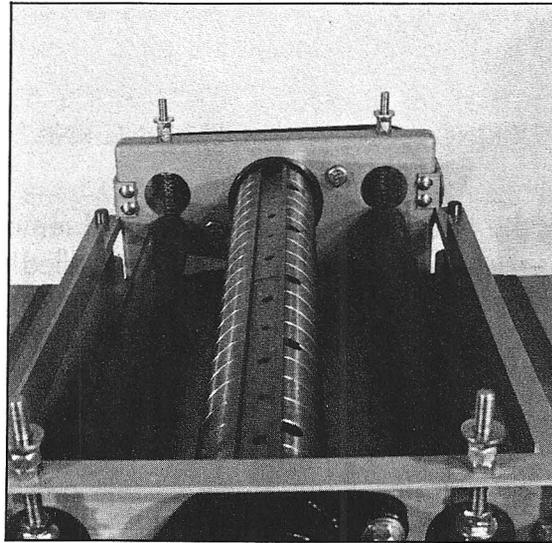


Fig. 12

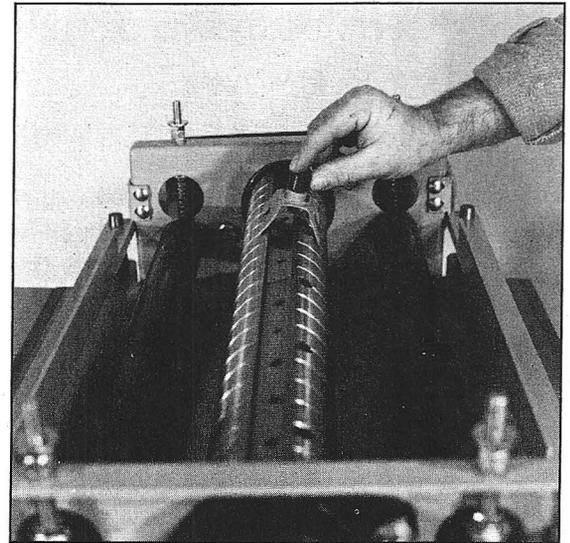


Fig. 13

THESE SCREWS AGAIN FOR TIGHTNESS AFTER 5 MINUTES OF OPERATION. BE SURE ALL OTHER FASTENERS ARE TIGHT AND ALL TOOLS ARE REMOVED FROM THE MACHINE PRIOR TO STARTING. ALWAYS INSTALL THE HOOD BEFORE OPERATING.

## CHANGING THE FEED DRIVE BELT (RB-305 AND RB-307)

The model 720 Planer is equipped with a two step pulley on the gear motor and two belts are provided (RB-305 and RB-307). This arrangement provides a wider range of feed speeds. The machine is shipped from the factory with the belt installed that yields the fastest possible feed speed. Use the following instructions to install the belt that gives lower feed speeds.

1. Remove the belt from the feed roller pulley and two step pulley by prying the Idler Bracket (RB-298) up and slipping the belt off of the Idler Pulley (RB-62).

2. Remove the belt from the Two Step Pulley (RB-296). (fig. 14)
3. Loosen the set screw in the two step pulley and remove the pulley from the Gear Motor (RB-301) shaft.
4. Turn the two step pulley end for end and slide it back on the motor shaft. Be sure to install the Key (RB-93) with the pulley. Tighten the set screw.
5. Install the other belt that is provided on the two step pulley and then on to the feed roller pulleys. Pry the idler bracket up and slip the belt on the pulleys.

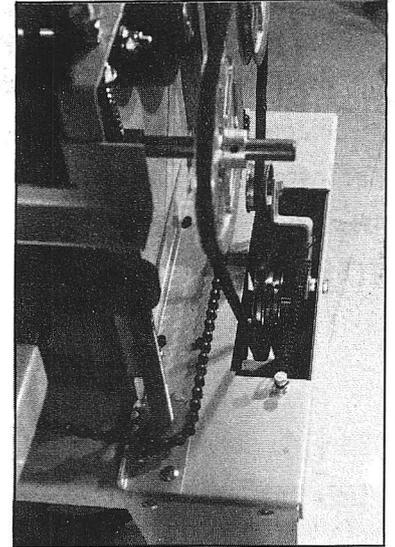


Fig. 14

#### CLEANING THE CUTTERHEAD AND KNIVES

Resin and dust may accumulate on the cutterhead and knife edges when working uncured or resinous lumber. If not periodically removed, the resin build-up will affect the cutting action of the knives and may lead to premature knife damage. Carefully wipe the resin and dust off of the cutterhead and knives with a rag moistened with kerosene or acetone.

#### CLEANING THE FEED ROLLERS (RB-263)

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 or acetone. (fig. 15)

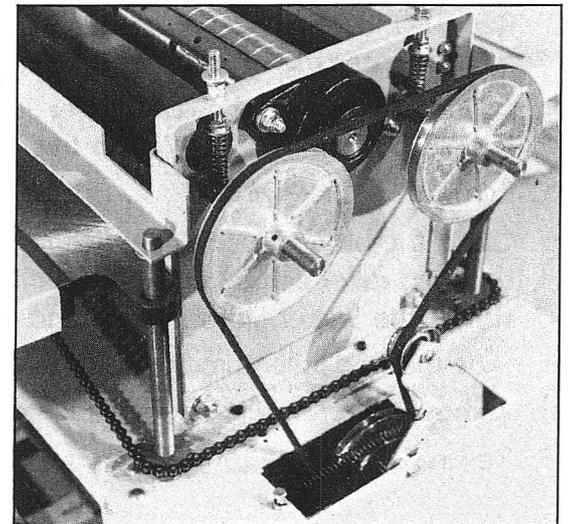


Fig. 15

#### KNIFE SHARPENING

1. Remove the planing blades from the cutterhead. See the instructions given in this manual for planing knife removal.
2. 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.
3. 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.

#### PLANER BED (RB-262) LEVELING

1. Remove the hood.
2. Adjust the Chain Tensioner (RB-280) so there is no tension on the Chain (RB-313).
3. Remove the master link from the chain.
4. Remove the chain from the corner sprockets. (fig. 16)
5. Adjust the height of the bed by turning the Corner screws (RS-5-A) or Crank Screw (RS-34-A). Turning the screws clockwise will raise the bed on that side. Each complete turn will adjust the bed 1/16" vertically.
6. Check the level of the bed by measuring from the bottom of the cutterhead to the top of the bed on the right and left sides of the bed.

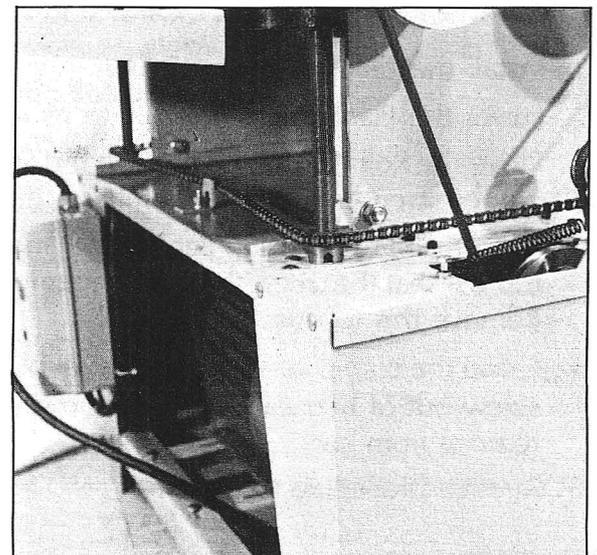


Fig. 16

7. When the bed is level with the cutterhead, check the height of the ends of the bed by measuring from the bottom of the Base (RB-278) to the top of the bed on both ends. Adjust the corner screws if necessary. Be sure to adjust both screws on the end equally so the bed to cutterhead relationship is not disturbed.
8. Place the chain on the corner screws. Be extremely careful not to move the corner screws.
9. Install the master link to the chain.
10. Adjust the Chain Tensioner (RB-280) if necessary.
11. Install the hood top and crank handle. Check the movement of the bed.

#### FEED ROLLER (RB-263) REMOVAL

1. Remove the hood.
2. Remove the Feed Roller Drive Belt (RB-305 or RB-307).
3. Remove the Feed Roller Pulleys (RB-91) from the end of the feed rollers. Loosen the set screws in the pulley and pull it off. (fig. 17)
4. Reduce tension on the Feed Roller Tension Springs (RS-19) by raising the Jam Nuts (RZ-73) on the Threaded Rods (RB-47).
5. Remove the springs.
6. Grasp the bronze Feed Roller Bearings (RS-57) on the ends of the feed roller and lift until the bearings are free from square slot in the Planer Sides (RB-265 and RB-268).
7. Slide the feed roller through the round holes in the planer sides.
8. Remove the feed roller bearings from the ends of the feed rollers.
9. Reverse procedure to install feed rollers.

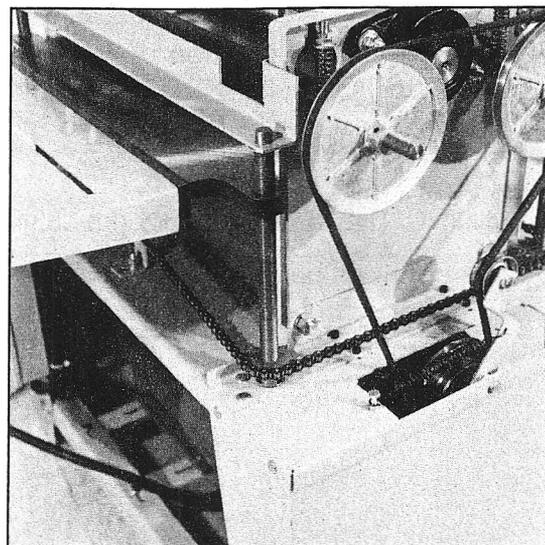


Fig. 17

#### CORNER SCREW (RB-78) OR CRANK SCREW (RS-5-A) REMOVAL

1. Install the Crank Handle (RB-84).
2. Lower the Planing Bed (RB-262) to its lowest position.
3. Drive the Roll Pin (RZ-59) through the Sprocket (RS-4) in the corner screw that is to be removed. (fig. 18)
4. Loosen and remove Top Bar (RB-269) mounting bolts on the top bar that the screw that is 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 corner screw, use crank handle to remove from ear.
6. Reverse procedure to install.

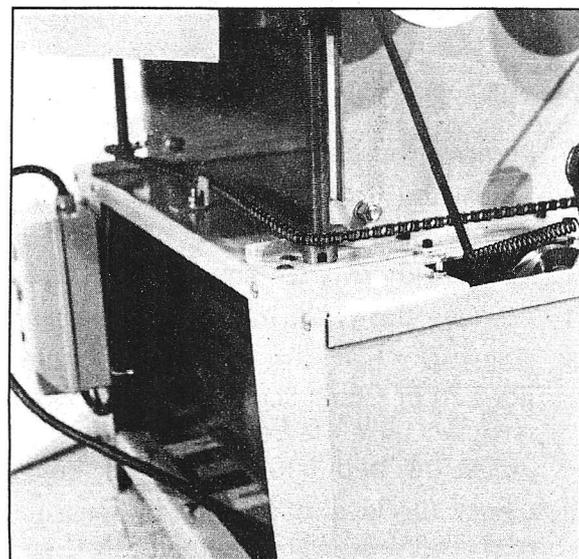


Fig. 18

## TROUBLE-SHOOTING

***PROBLEM: Feed roller turns with jerking motion, stock hesitates as it passes through the machine.***

### **Possible Causes**

1. Set screws in feed roller drive pulleys loose
2. Feed roller belt slipping
3. Feed roller worn or damaged
4. Attempting too deep of a cut
5. Feed rollers slipping on stock
6. Feed drive speed control or motor malfunction
7. Build-up of oxidation or rough surface on bed

### **Possible Solutions**

- Tighten set screws
- Adjust belt tensioner, replace tension spring or replace belt if worn
- Replace feed roller
- Reduce the depth of cut
- Clean feed rollers
- Have speed control, motor and wiring checked by qualified technician
- Smooth top surface of bed with an abrasive material and then apply wax

---

***PROBLEM: Feed roller(s) are not turning.***

### **Possible Causes**

1. Feed roller drive belt loose, off of pulley or broken
2. Feed roller bearings seized
3. Set screws in feed roller pulleys loose
4. Rubber separated from steel shaft
5. Feed drive motor not on or disconnected

### **Possible Solutions**

- Adjust belt tension or replace belt
- Replace bearings
- Tighten set screws
- Replace feed roller
- Turn power on to gearmotor

---

***PROBLEM: Feed roller turns but does not feed the stock through the machine.***

### **Possible Causes**

1. Obstruction under feed roller shaft bearing
2. Feed roller worn or damaged
3. Build-up of resin or dust on feed roller

### **Possible Solutions**

- Remove obstruction
- Replace feed roller
- Clean rollers

---

***PROBLEM: Stock is difficult to feed into machine or feed roller slips on stock.***

### **Possible Causes**

1. Attempting too deep of cut
2. Oxidation build-up or rough surface on bed

### **Possible Solutions**

- Reduce the depth of cut
- Smooth the top surface of the bed by using an abrasive material and then apply wax

---

***PROBLEM: Feed roller pushes stock out when attempting to feed it in.***

### **Possible Causes**

1. Attempting to feed the material into the out-feed side of machine
2. Motor shaft is rotating backwards

### **Possible Solutions**

- Feed the stock into the infeed side
- Have a qualified technician reverse the polarity of the motor wiring

***PROBLEM: Cutterhead revolutions per minute significantly reduces while cutting.***

**Possible Cause**

1. Planing knives are dull
2. Attempting too deep of a cut
3. Cutterhead drive belt slipping
4. Insufficient power supply
5. Damaged or undersized motor

**Possible Solution**

- Sharpen knives
  - Reduce the depth of cut
  - Adjust or replace belt
  - Have qualified technician check circuit and repair if necessary
  - Repair or replace motor with a more powerful unit
- 

***PROBLEM: Excess vibration during operation.***

**Possible Cause**

1. Knives improperly set
2. Planing head bearings failing or seized
3. Pulleys on the motor or cutterhead are loose
4. Cutterhead drive belt loose
5. Build-up of resin on cutterhead
6. Knives missing or damaged
7. Molding knives not properly counterweighted

**Possible Solution**

- Check knives and gibs and adjust if necessary
  - Grease bearings if possible, replace if necessary
  - Tighten set screws that fasten them to the shafts
  - Adjust or replace belt
  - Clean cutterhead
  - Repair or replace knives
  - Use proper counterweight gibs for custom knife
- 

***PROBLEM: Motor does not start.***

**Possible Causes**

1. Blown circuit fuse
2. Thermal reset on motor tripped
3. Insufficient power supply

**Possible Solution**

- Replace fuse
  - Allow motor to cool, then push reset button
  - Have qualified technician check circuit and repair if necessary
- 

***PROBLEM: Machine leaves revolution marks in stock that are parallel to the cutterhead.***

**Possible Cause**

1. Feed rate is too high
2. Planing knives are not installed to uniform height
3. Knives dull

**Possible Solution**

- Reduce the feed rate
  - Adjust the height of the knives
  - Sharpen knives
- 

***PROBLEM: Machine leaves ridges or grooves in stock that are perpendicular to the cutterhead.***

**Possible Cause**

1. Nicks or chips in knives

**Possible Solution**

- Sharpen the knives, or shift left or right so that nicks don't line up
- 

***PROBLEM: Machine tears large chunks of material from the stock.***

**Possible Cause**

1. Feed rate too fast
2. Knives are dull or not sharpened to correct angle
3. Planing against the direction of the grain

**Possible Solution**

- Reduce feed rate
  - Sharpen knives to a 30-45° angle
  - Feed the other end of the stock into the machine first
-

***PROBLEM: Machine leaves scallops (deeper cuts) that are parallel to the cutterhead at regular intervals or the top surface of the stock is uneven in height (wavy) across its length.***

**Possible Cause**

1. Feed roller is warped (bent or bowed)

**Possible Solution**

Replace the feed roller

---

***PROBLEM: Machine strips or peels material from the stock as it planes.***

**Possible Cause**

1. Material is uncured (green) or wet
2. Attempting too deep of cut

**Possible Solution**

Allow the material to cure or dry completely  
Reduce depth of cut

---

***PROBLEM: Machine leaves press marks (indentations) in the material.***

**Possible Cause**

1. Resin and chip build-up on feed rollers

**Possible Solution**

Clean feed rollers

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***PROBLEM: Crank handle is difficult to turn.***

**Possible Cause**

1. Chain not sufficiently lubricated
2. Chain too tight
3. Corner screws are bent

**Possible Solution**

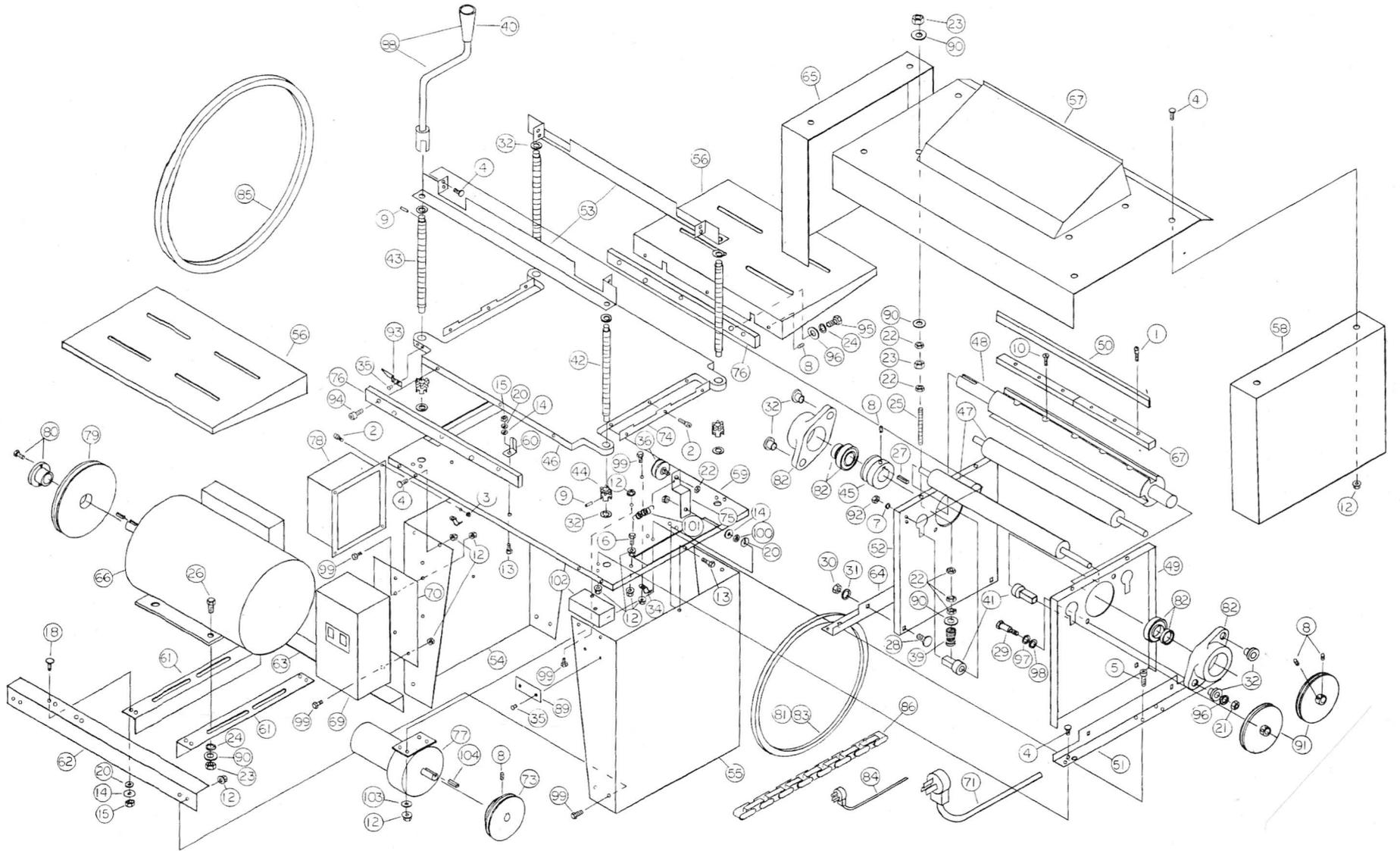
Lubricate the chain  
Reduce tension with the chain tensioner  
Replace the bent corner screw or screws

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***PROBLEM: Machine produces snipe (deeper cuts on the ends of the material).***

See SUGGESTIONS FOR REDUCING SNIPE in this manual.

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## 720 PARTS BREAKDOWN LIST

Key #	Part #	Part Description	Qty.	Key #	Part #	Part Description	Qty.
1	RB-320	10-32 x 3/4" SOCKET HD. CAP SCREW	18	58	RB-277	R.S. HOOD SIDE	1
2	HA-32	10-32 x 7/16" SOCKET HD. CAP SCREW	4	59	RB-278	PLANER BASE	1
3	RB-107	10-32 HEX NUT	4	60	RB-280	CHAIN TENSIONER	1
4	RB-99	1/4" -20 x 5/8" CARRIAGE BOLT	31	61	RB-281	MOTOR MOUNT BAR	2
5	RZ-75	1/4" -20 x 1" SOCKET HEAD CAP SCREW	4	62	RB-282	FRONT MOUNT SUPPORT	1
6	PS-80	1/4" -20 x 1 1/4" HEX HEAD BOLT	1	63	RB-283	REAR MOUNT SUPPORT	1
7	RBZ-207	1/4" LOCK WASHER	15	64	RB-284	L.S. PLANER SIDE MOUNT BRACKET	1
8	RZ-83	1/4" -20 x 1/4" SET SCREW CUP PT	9	65	RB-285	L.S. HOOD SIDE	1
9	RZ-59	1/4" ROLL PIN	5	66	RB-290	5 H.P. 215 FRAME A.C. MOTOR (STAND.)	1
10	RZ-182	1/4" -28 x 3/4" SOCKET FLAT HEAD SCREW	15		RB-292	7.5 H.P. 215 FRAME A.C. MOTOR (OPT.)	1
12	RB-223	1/4" -20 WHIZ NUT	37			(BOTH WITH KEYS)	
13	RZ-181	5/16" -18 x 1" HEX HEAD BOLT	2	67	RB-291	STEEL GIB 10 1/4"	6
14	RB-150	5/16" FLAT WASHER	6	69	RB-312	MAGNETIC STARTER SWITCH HOUSING (OPT.)	1
15	RZ-81	5/16" -18 HEX NUT	5	70	RB-294	MAGNETIC STARTER MOUNTING PLATE	1
16	RB-513	5/16" -18 LOCK WHIZ NUT	1	71	RB-299	720 DRIVE POWER CORD ASSEMBLY	1
18	RZ-179	5/16" -18 x 3/4" CARRIAGE BOLT	4			CONSISTS OF ONE EACH: RB-310 CORD SET	
19	RZ-185	5/16" -18 x 5/16" SOCKET HD. SET SCREW	2			OPTIONAL RB-293 MAG. START. SWITCH	
20	RZ-178	5/16" LOCK WASHER	6			RB-312 MAG. ST. SW. HOUSING	
21	RB-183	3/8" -16 HEX NYLON INSERT LOCK NUT	4			RB-311 3-PRONG MALE PLUG	
22	RZ-73	3/8" -16 HEX JAM NUT	21	73	RB-296	TWO STEP FEED ROLLER DRIVE PULLEY	1
23	RZ-58	3/8" -16 HEX NUT	8	74	RB-297	PLANING BED RAIL	2
24	RZ-71	3/8" LOCK WASHER	4	75	RB-298	IDLER BRACKET	1
25	RB-47	3/8" -16 x 4" THREADED ROD	4	76	RB-300	EXT. TABLE ADJUSTMENT BAR	2
26	RZ-18	3/8" -16 x 1 1/4" HEX HEAD BOLT	4	77	RB-301	1/6 H.P. GEAR MOTOR B1 FRAME	1
27	RZ-89	3/8" x 1 1/2" SQUARE KEY	1	78	RB-302	PHASE CONTROL ASSEMBLY	1
28	RB-35	1/2" -13 x 1" HEX HEAD CAP SCREW	4	79	RB-303	7 3/4" C.I. MOTOR DRIVE PULLEY	1
29	HA-13	1/2" -13 x 1 1/16" SHOULDER BOLT	4	80	RB-304	REDUCER BUSHING FOR RB-303 (W/BOLTS)	1
30	RZ-69	1/2" -13 HEX NUT	4	81	RB-305	#1540 BELT	1
31	RB-11	1/2" LOCK WASHER	4	82	RB-306	BALL BEARING, LOCK COLLAR AND HOUSING	2
32	R-549	5/8" I.D. 18 GA. MACHINE BUSHING	4	83	RB-307	#1560 BELT	1
	RZ-199	3/4" ROMEX PLUG (NOT SHOWN)	1	84	RB-308	GEAR MOTOR POWER CORD ASSEMBLY	1
34	RZ-201	3/4" METAL ROMEX CLAMP	2			CONSISTS OF ONE EACH: RB-302 PHASE CONTROL	
35	RZ-52	#4 x 5/16" DRIVE PIN	4			RB-287 CORD SET W/ PLUG	
36	RB-62	2" IDLER PULLEY	1	85	RB-309	#6861 BELT	1
	RZ-200	LARGE WIRE NUT (NOT SHOWN)	3	86	RB-313	#41 CHAIN 86 1/4" LONG	1
	RZ-202	SMALL WIRE NUT (NOT SHOWN)	2	88	RB-316	CRANK HANDLE ASSEMBLY	1
39	RS-19	FEED ROLLER TENSION SPRING	4			CONSISTS OF ONE EACH: RB-279 CRANK WELD. ASSEMBLY	
40	RB-149	PLASTIC HANDLE GRIP	1			RB-149 PLASTIC GRIP	
41	RB-315	FEED ROLLER BUSHING	4			RB-164 RETAINING RING CLIP	
42	RS-5-A	CORNER SCREW	3	89	RB-317	SERIAL NUMBER TAG 720	1
43	RS-34-A	CORNER SCREW	1	90	RZ-50	3/8" FLAT WASHER	17
44	RS-4	CORNER SPROCKET	4	91	RB-91	FEED ROLLER PULLEY	2
45	RB-139	CUTTERHEAD PULLEY	1	92	RBZ-208	1/4" -20 HEX NUT	15
46	RB-262	PLANING BED	1	93	RB-74	POINTER	1
47	RB-263	FEED ROLLER	2	94	RZ-92	5/16" -18 x 5/8" SOCKET HD. CAP SCREW	4
48	RB-264	PLANING HEAD	1	95	RBZ-212	3/8" -16 x 3/4" HEX HD. CAP SCREW	1
49	RB-265	R.S. PLANER SIDE	1	97	HA-67	.125" SPACER	4
50	RB-266	PLANING BLADE 20 1/2"	3	98	HA-14	18 GA. SPACER	4
51	RB-267	R.S. PLANER SIDE MOUNT BRACKET	1	99	JM-43	1/4" -20 x 1/2" HEX HD. CAP SCREW	16
52	RB-268	L.S. PLANER SIDE	1	100	RZ-74	5/16" -18 JAM NUT	1
53	RB-269	TOP BAR	2	101	RB-63	IDLER SPRING	1
54	RB-270	L.S. SKIRT	1	102	RB-319	CONDUIT BOX	1
55	RB-271	R.S. SKIRT	1	103	RB-177	1/4" FLAT WASHER	4
56	RB-272	EXTENSION TABLE ASSEMBLY	2	104	RB-93	3/16" x 1" SQUARE KEY	1
57	RB-276	HOOD TOP ASSEMBLY	1				

## SUGGESTIONS TO REDUCE SNIPE

Snipe is a deeper cut at the ends of a board that is created by most self feeding planers. 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. Most self feeding planers tend to create snipe. Although it is nearly impossible to avoid snipe on all stock, the following suggestions may help to reduce or even eliminate snipe from most 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 the boards at an angle and plane. Square the ends after planing is completed.
4. Support the ends of long boards by roller stand.
5. Raise the ends of the extension tables by tightening the set screws in the extension table mounts.

## MOLDING INSTRUCTIONS

The model 720 planer is capable of producing molding with the use of custom molding knives. By removing the planing knives and gibs, the custom molding knives and gibs may be installed and used in the planing cutterhead. A molding head assembly is also available for this machine which enables the operator to replace the planing cutterhead with a head designed for molding use. This allows the operator to use the machine as a molder without removing the planing knives. Instructions for preparing the machine for molding with the planing head are given in this section.

### PREPARING THE BED FOR MOLDING

Many of the custom molding knives are designed to extend beyond the bottom of the molding. Because of this, a base board must be mounted to the planer bed to prevent damage to the machine and knives. You can make your own or buy the 720 Guide Board Assembly from RBI.

**WARNING:** USING MOLDING KNIVES IN THIS MACHINE WITHOUT A BASE BOARD MOUNTED ON THE BED MAY RESULT IN DAMAGE TO THE MACHINE AND KNIVES AND VOID YOUR WARRANTY.

#### A. BED PREPARATION:

1. Disconnect the machine from electrical power.
2. Acquire a 20 1/4" by 44 1/4" piece of solid wood, plywood or particle board that is at least 1/2" thick.
3. Lower the bed enough to allow the board to pass through the planer.
4. Slide the board through the planer and position it so that it is centered lengthwise on the bed and extension tables.
5. Trace the pattern of the oblong slots punched in the extension tables on the board with a pencil.
6. Remove the board from the planer and cut these slots out.
7. Return the board to the machine and install bolts through the slots to secure the board in place.
8. Drill two 9/32" holes through each end of the board (four holes total) through the extension tables. Position the holes so that they pass through the extension tables between the mounts and the punched slots. Counterbore the holes in the board so that the heads of the bolts will be recessed.
9. Fasten the board to the planer by installing 1/4" hex head bolts through the 9/32" holes and securing with nuts and lock washers.

## B. FACE MOLDING GUIDES:

1. Obtain four 1" x 1" or wider pieces of stock that are 44 1/4" long.
2. Lower the bed enough to allow the stock to pass through the planer.
3. Slide the stock through the planer and center them lengthwise beneath the cutterhead.
4. Mark the location of the feed rollers and the cutterhead on the stock. Also mark the location of the oblong slots in the base board on the stock.
5. Remove the stock and cut 1/4" deep arcs where marked to create clearance for the feed rollers and cutterhead. Drill 9/32" holes through the stock for the slot bolts.
6. Slide the stock through the planer again and fasten them with 1/4" carriage bolts passing through the base board and extension tables. Secure with flat washers and wing nuts.

## C. EDGE MOLDING GUIDES:

The procedure for making edge molding guides is the same as for face molding guides except for the dimensions of the stock. The stock used for edge molding guides when placed on edge should be at least 1/2" shorter than the stock to be edge molded. For extremely tall edge guides, it may be necessary to devise a different method of fastening them to the machine.

NOTE: The 720-GB Guide Board Assembly is a prepared guide kit featuring a pre-dimensioned and pre-drilled guide board and steel molding guides. It is available from your local RBI dealer or from the factory. Some drilling required.

## CUTTERHEAD PREPARATION FOR MOLDING

1. Remove the planing blades from the cutterhead. See the procedure in this manual.
2. Turn the jackscrews in the cutterhead down as far as possible so that the molding knives will seat in the bottom of the cutterhead slot.
3. Clean the cutterhead slots by wiping with a rag moistened with light oil.
4. Place the custom molding knife or knives in one of the cutterhead slots. If using a three knife set, place a knife in each slot. Be sure the bevelled edge of the knife is toward the jackscrew side of the slot.
5. Install a gib in the slot or slots with the knives. Do not completely tighten the gib cap screws.
6. Install gibs and spacers in the cutterhead slots without knives. Position the gib and spacer sets in the slots so that they are in line with the knife and its gib. Completely tighten the steel gib cap screws so that the steel spacers are secure in the cutterhead slots.
7. Adjust the knife to the desired position. If using a three knife set, align the three knives. There are several grooves spaced at 1" intervals along the length the cutterhead to help in the alignment of the knives. (fig. 19)
8. When the knives are aligned satisfactorily, finish tightening the gib cap screws.
9. CHECK ALL GIB CAP SCREWS. TIGHTEN IF NECESSARY.
10. Install the hood.
11. REMOVE ALL TOOLS FROM THE MACHINE.
12. Check the gib cap screws again after 5 minutes of operation. Tighten if necessary.

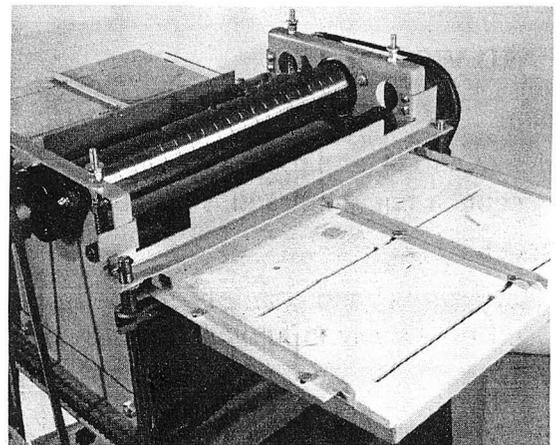


Fig. 19

## **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.

## **ACCESSORIES**

The following is a list of accessories that are available for use with the R.B.I. 720 Planer. For prices and additional information, consult your nearest R.B.I. equipment dealer or the factory. These accessories are not standard items included with the 720 planer.

### **700-A QUICK CHANGE MOLDING HEAD™ ASSEMBLY**

An assembly designed specifically to be used with the custom molding knives eliminating the need to remove planing blades from the planing head. Quick and easy to install and remove. Includes two 602-C Custom Knife Holders.

### **602-C CUSTOM KNIFE HOLDER**

A holder for 1/4" custom and special custom molding knives. Mounts on the 700-A Quick Change Molding Head™. Several may be used at the same time.

### **WOOD MOLDING PATTERN KNIVES (WM SERIES)**

Special 1/4" tool steel ground to specific dimensions to produce standard wood moldings. Can also grind custom designs taken from scaled drawings or molding samples. Knives supplied with balanced gibs and weights as needed. Contact your nearest dealer or the factory for a complete listing of WM series molding knives.

### **700-AS STAND**

Metal stand that holds the standard planing head, 700-A molding head or 720-S sanding head that prevents damage to knives or sandpaper.

### **KSG KNIFE SETTING GAUGE**

Gauge that checks the height of planer blades in cutterhead. Greatly eases planer blade installation and adjustment.

### 314 ROLLER STAND

Supports boards extending from infeed or outfeed of sides of planer. Roller operates on ball bearings, adjusts from 21" to 45" inches in height and can support up to 250 lbs.

### 720-S SANDING HEAD ASSEMBLY

Sanding head converts the planer into a drum sander. Installs quickly into planer and is shipped complete with bearing and housing. Assembly includes sandpaper and felt backing material.

### 720-GB GUIDE BOARD ASSEMBLY

Guide boards are pre-sized and drilled to mount to the 720 planer. Guides are fully adjustable for all molding applications. Some drilling required.

## 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  
Ship to: \_\_\_\_\_  
Your Name (please print)  
Address \_\_\_\_\_  
Street P.O. Box Rural Route  
City \_\_\_\_\_  
State \_\_\_\_\_ Zip \_\_\_\_\_  
Country \_\_\_\_\_
  
4. Send Order To:

## Bushton Manufacturing

107 South Main P.O Box 127

Bushton, KS 67427

Phone: 620-562-3557 Fax: 620-562-3557