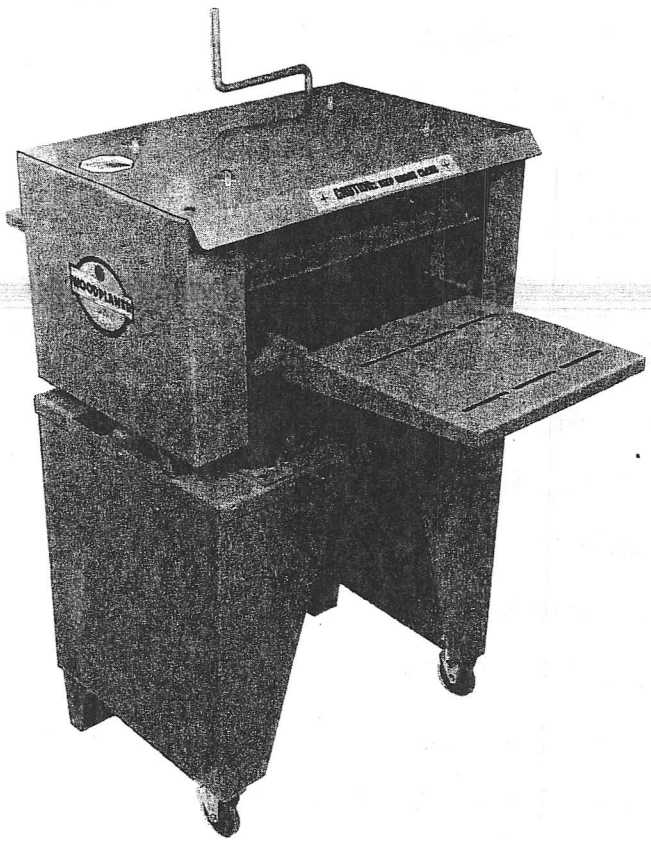
Bushton Manufacturing
Maker Of
Hawk Woodworking Tools

MODEL 612 PLANER
OPERATORS MANUAL
FOR
(JOINTER) (SANDER)
(PLANER) (MOLDER)



SAFETY FIRST

READ THOROUGHLY BEFORE OPERATING

SAFETY FIRST

"U.S. Des. PAT" NO. D268,843
"U.S. PAT." NO. 4,394,878

MANUAL #0884

CONTENTS

(PLANER-MOLDER-JOINTER-SANDER)

—ACCESSORIES—

SPECIFICATIONS

PLANING	Max. Cutting Depth Per Pass	3/16 in.
	Max. Width of Cut	12 in.
	Max. Thickness of Stock	6 in.
	Min. Thickness of Stock	3/16 in.
	Shortest Piece (Not butted)	9 in.
FEED	(2) Rubber Rollers - Self feeding @ 11 ft. per min. or 32 Ft./Min.	
CUTS PER INCH	94 @ 4200 RPM Cutter Head Speed Slow Speed (Shipped from Factory	
	32 @ 4200 RPM Cutterhead Speed Fast Speed at this speed)	

	WIDE	LONG	HIGH
ASSEMBLED PLANER SIZE	26 in.	46 in.	36.75"

Cutterhead Steel 3¼ in. diameter with three blade slots
Cutterhead bearings 1½ in. self aligning ball bearings
Power requirements 3 H.P. 230 Volts Single Phase
Motor Pulley required 3¼ in. for 3450 RPM Motor
6.65 in. for 1725 RPM Motor

GENERAL INSTRUCTIONS

The Model 612 Planer is designed for both the professional and hobby shop enthusiast. It is designed for ease and simplicity of operation, maintneance and adjustment by the operator with ease of operation and his safety in mind. As with any new piece of equipment, the operator should become familiar with it. To do this, the operators manual should be thoroughly read and understood.

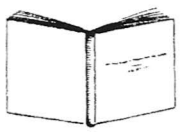
REMEMBER . . . SAFETY DOESN'T JUST HAPPEN, IT IS PLANNED!
ACCIDENTS DON'T JUST HAPPEN . . . THEY ARE CAUSED!

Read and practice the safety precautions. Follow the instructions provided in the operator's manual.

The operator's manual is designed with the table of contents to quickly give the location of needed information by sections. The information in each section is as condensed as possible with pictures and diagrams to assist the operator with a step by step procedure for identifying and correcting problems.

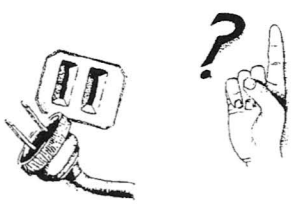
ALL ON SAFETY

SAFETY



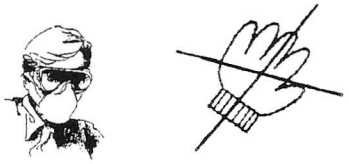
TRAINING:

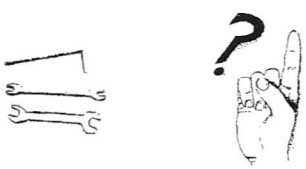
1. Read the operators manual carefully. Be thoroughly familiar with the operation of the equipment. Know where the controls are and how to operate them.
2. Never allow children to operate equipment. Never allow adults to operate the equipment without proper instruction.
3. Keep work area clear of other persons.
4. Maintain a clean uncluttered work area.



OPERATION SAFETY:

1. Never make any adjustments while the machine is running.
2. Keep hands and feet away from rotating parts. Keep clear of infeed and discharge openings.
3. Disconnect electrical power supply before doing any adjustments on the machine.
4. Exercise caution when working on cutterhead, as the knives are extremely sharp.
5. Remove all working tools and equipment before starting machine.
6. Wear proper clothing. Avoid loose fitted clothing, long sleeves, long hair, gloves, neck ties, jewelry, watches, rings, etc.
7. Wear safety goggles, ear protection (ear plugs or covers) and mask in dusty operations.
8. Do Not operate an electrical device in a damp or wet area to avoid electrical shock.
9. Maintain all insert safety guards.
10. Do not operate machine while under the influence of medication, alcohol or drugs.
11. Never leave machine running unattended.
12. Don't overload machine. Follow operators instruction for safe operation.
13. Keep equipment in proper working order. Follow recommended maintenance procedures in the operators manual.
14. Use lumber with no loose knots or splintered surfaces.
15. Recheck cutterhead screws for tightness after 5 minutes of operation when new and after changing knives.
16. Do Not raise bed high enough to contact cutterhead knives.





All Planers are run tested, checked and adjusted at the factory before shipment. Shipping may cause some misalignment. **Report all damage to the carrier, do not call the factory.**

ASSEMBLY INSTRUCTIONS

The assembly instructions include all parts supplied by us for a complete unit: If all the parts were not purchased, it will be necessary to improvise and skip over the instructions which do not apply.

Tools required - wrenches 7/16 in., 1/2 in., 9/16 in. open end wrenches. Remove from shipping carton and check to see if all parts were received without damage.

Damages or shorted parts are to be reported to the transportation carrier. Manufacturer is not responsible for shipping damage.

1. PLANER BOX CARTON:	QUANTITY
A. Planer Assembly	1
B. Extension Table	2
C. Crank	1
D. Bolt Bag (4) 3/8 in. X 1 in. Capscrews (4) Flat washers (4) Lock Washers	1
E. Operators Manual #0884	1
F. Fast Speed Belt	1

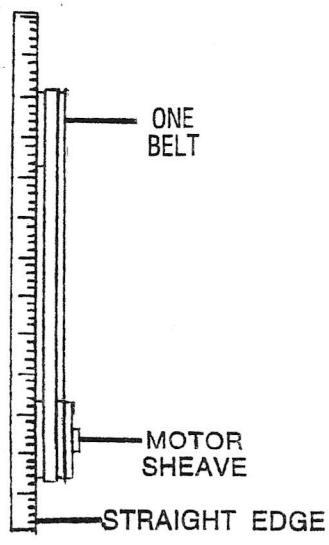
PLANER

1. Install lock washer, then flat washer on 3/8 in. X 1 in. bolts. Start into the four threaded holes at the infeed and outfeed ends of the planer bed.
2. Slide the extention table down between the flat washers and bed.
3. Using the two Allen Set Screws in the slotted angle of extension table, level the extension table to the top of the bed while tightening bolts. Recheck for level.
4. Repeat Steps 2, 3 & 4 for the second extension table.
5. Recheck to see that all bolts, nuts and set screws are tight and all tools and equipment are removed from the machine before operating.

THE FOLLOWING INSTRUCTIONS ARE FOR INSTALLING THE MOTOR:

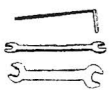
Motor Mounting or Remounting:

1. Mount the V-Pulley to the motor shaft and leave it loose.
2. Bolt the motor to the slotted holes in the mounting base below the planer bed, secure.
3. Align the V-Pulley on the motor shaft with the V-Pulley on the cutterhead and tighten it. (See figure)
4. Install belt and let the motor hinge down. Secure adj. Bolt in this position.
5. Wiring should be done by a licensed electrician.



MOTOR SHEAVE
ALIGNMENT

OPERATING INSTRUCTIONS PLANING



A. Check machine to make sure all bolts, nuts & wrenches have been removed from the machine.

B. Turn machine on and visually check proper rotation of feed rollers.
CAUTION: KEEP HANDS AWAY FROM ALL MOVING PARTS

C. Planing Operation:

WITH MACHINE TURNED OFF

1. Place a board (3 to 4 ft. long) to be planed under the infeed roller.
2. Turn the crank handle to raise the planer bed so the board just contacts the roller.
3. Remove the board.
4. Turn the bed crank four full turns up. (This will allow contact with the top of the cutterhead knives and removing high spots on the board.)

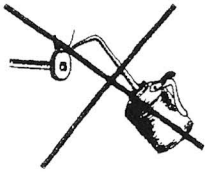
NOTE: FEED BOARD INTO MACHINE STRAIGHT.
CAUTION: DO NOT STAND IN FRONT OR BEHIND MACHINE WHEN IN OPERATION.

TURN THE MACHINE ON

5. Start the board into the machine so it will travel in a straight line.
6. Turn bed crank to desired depth of cut and feed board through again.
7. Depth of cut information:
   Turn crank handle 1/4 turn = 1/64 inch cut
   Turn crank handle 1/2 turn = 1/32 inch cut
   Turn crank handle 1 turn = 1/16 inch cut

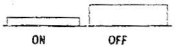
LUBRICATION

NOTE: PARTS ON THIS PAGE ARE REFERRED BY KEY # TO SCHEMATIC DRAWING PAGE #14,15



Corner Screw (Key #47) and Crank Screw (Key #46)
2 - 4 drops of oil at the bed contact and bottom wear washer, as required for ease of turning.

Feed Roll Bearings (Key #6)
2 - 4 drops on the roller shaft at the side of the bronze bearing every 20 hours of operation or more often under **severe or intermittent use.**



Dual V-Pulley (Key #22)
2 drops to (Key 21) Bushings every 8 hours of operation.

LUBRICATION
Lubricate Electric Motor, if required, according to instructions supplied with motor. Grease Reduction Unit Assembly every 40 Hrs. of operation. Do Not over-grease as excess will cause belt slippage.

Bed & Extension Surfaces
Apply paste wax or paraffin to prevent rust and to reduce fraction and increase ease of feeding on bed and extension tables.

Cutterhead Knives

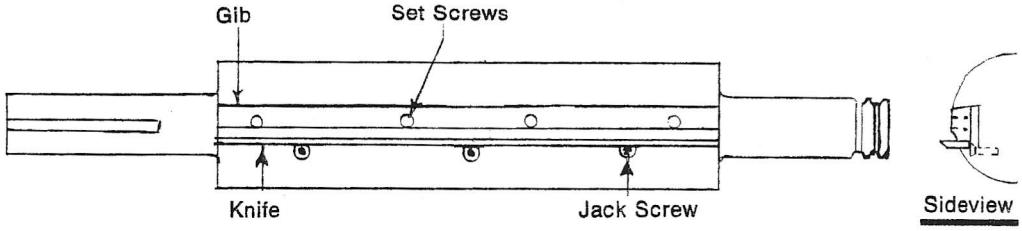
A. Removal:

1. Disconnect Electrical Source
2. Remove Hood
3. Mark gibs and slots so they may be replaced in the same location in the cutterhead from where they are removed.
4. Loosen all (4) set screws in one cutterhead slot ¼ inch.
5. Use a flat piece of metal (approximately ¼" X 2") to tap gibs down in the cutterhead slot.
6. Remove knife.

7. Repeat procedure for the other two slots in the cutterhead.

B. Replacement:

1. Clean all gibs, knives and slots with an oiled cloth.



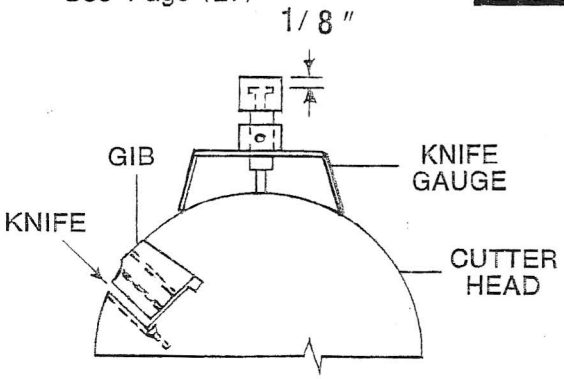
2. Turn slot upward and insert gib on opposite side of slot from jackscrews with curved up edge toward jackscrew.
3. Insert knife with the beveled edge toward the jack screws.

Pat. Pending

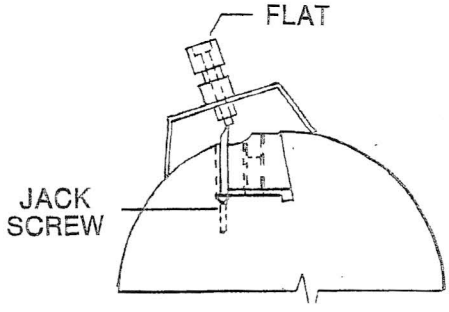
This Knife Gauge is an Accessory and Should Be Purchased

See Page (27)

NOTE: MAKE SURE THE JACK SCREWS ARE SCREWED IN FAR ENONGH TO ALLOW THE KNIVES TO GO DOWN BELOW MAXIMUM HEIGHT ADJUSTMENT.



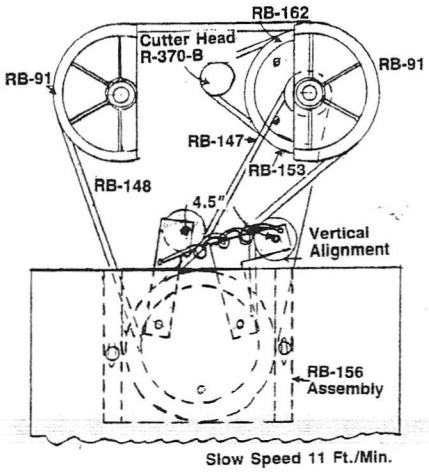
4. Tighten set screws in gib just enough to hold knife in place centered in the cutterhead.
5. Adjust knife gauge as shown in diagram so plunger is 1/8" below top. (Allen screw locks plunger guide in position)
6. Place the knife gauge over the knife with the bottom of the plunger on the knife edge.
7. Adjust the knife up by turning the adjusting jack screw counter-clock-wise until the knife gauge plunger is level with top of the plunger guide (se diagram)
8. Check the full length of the knife for equal adjustment.
9. If uneven, check to see if gib is too tight, binding knife movement.
10. When even, tighten set screws in gibs and recheck knife length.



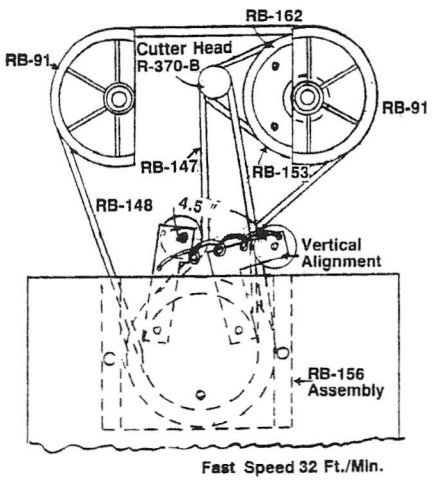
12. Follow the same procedure for each cutterhead slot. **Recheck all set screws for tightness before starting machine. Check to make sure all tools and equipment are removed from machine prior to starting it.**

To Tighten V-Belt Drive, Key #23

1. Disconnect Electrical Source.
2. Remove Hood.
3. Remove Reduction drive idler spring #RB-63, Feed Roller Drive Belt #RB-148 and outfeed roller drive pulley #RB-91.
4. Remove V-Pulley drive belt #RB-162
5. Remove V-Pulley #RB-153 Assembly.
6. Remove the four screws holding V-Pulley together. Remove one spacer, from each bolt, between V-Pulley halves.
7. Reassemble V-Pulley with remaining spacers and tighten.
8. Replace on outfeed roller shaft, small V-Pulley to the outside.
9. Reverse procedures 4 to 1 above to reassemble.



Slow Speed 11 Ft./Min.

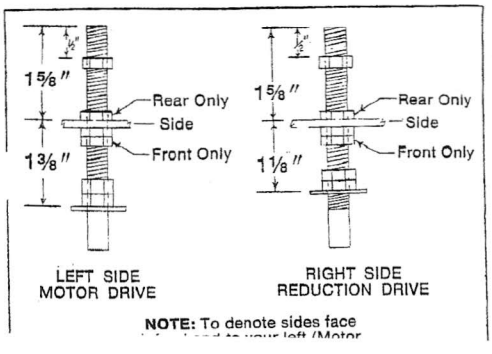


Fast Speed 32 Ft./Min.

Feed Speed Change - Slow 11 ft./min. to 32 ft./min.

1. Disconnect Electrical Source.
2. Remove hood.
3. Remove the feed roll drive belt (RB-148) from the outfeed roller sheave (RB-91).
4. Remove the reduction drive belt (RB-147) from the Reduction drive input sheave (RB-88-Y) and the dual V-Pulley (RB-153).
5. Install the reduction drive belt (RB-147) in the outer groove of the cutterhead (R-370-B) and the reduction input sheave (RB-88) with the idler positioned on the back of the belt (Figure #2 Fast Feed).
6. Reinstall the feed roller drive belt (RB-148) on the internal gear V-sheave (RB-95) and both feed roller pulleys (RB-91).
7. Install the tension spring (RB-63) in the RB-145 and RB-146 Idler Brkt.
8. Adjust the belt tension by loosening the two ¼" carriage bolts which attach the RB-156 gear box assembly to the skirt. Move the gear box up, down, left or right to obtain 4-½" dimension at the tension spring (RB-63) attaching holes. While at the same time having the feed roller drive idler vertically above the offset of the RB-156 assembly mounting bracket and secure (See Figures).
9. Replace Hood.
10. Connect Electrical Source.

FAST SPEED



Increasing and Decreasing Infeed & Outfeed Roller Tension

1. Loosen jam nuts
2. Screw lower nut down (clockwise) to increase roller pressure. Screw it up, counter-clock-wise, to reduce roller pressure.

Bed Height Adjustment

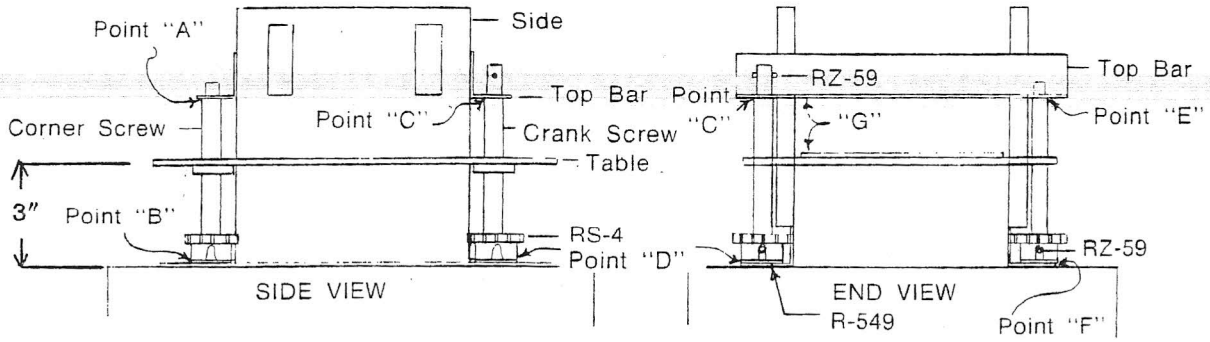
1. The crank is used on the crank screw to raise and lower the bed.
2. Clock-wise turning raises the bed.
   Counter-clock-wise lowers the bed.
3. Each complete turn raises or lowers the bed 1/16 inch. Max. cut no more than 3/16 in. (3 full turns).

Cutterhead Drive Belt

1. Loosen the adjusting stud and let the motor mount hinge down using the weight of the motor to tension the belt. Secure the adjusting bolt in this position. (Loose belts can also cause vibration.)

PLANER TABLE LEVELING (MODEL 612)

1. Turn the crank until you obtain a dimension of three inches, table top to a point "B" of the side.
2. Remove the RS-41 chain connector link and remove chain from sprockets.
3. Set each corner screw to a three inch dimension as described in procedure #1 (table top to point "B" of the side.)
4. Check the movement of the table down. Adjust the necessary corner screw down to make the corner screw sprockets rest evenly on all four corners. Press down on each table corner to check down movement.
5. Check the distance between the cutterhead knives and the table on the left side, then the right side. If one side is more than one-sixty fourth lower than the other, turn the two RS-4/ RS-34-A or RS-5-A assemblies on the lower side clockwise to raise the table 1/4 turn =1/64" rise of the table.) Table to knife distance to be the same.
6. When level replace the RS-41 chain, being careful not to move the corner sprocket settings, Turning of the sprocket assembly changes the level of the table.
7. A few drops of oil at point "A", "B" and at the table to corner screw junction gives easier crank turning.



Cleaning Feed Rollers

During extended periods of time and under moist wood operation, a build up of resin can occur on the roller. This can be removed by wiping with Kerosene.

CAUTION: KNIVES ARE SHARP!

Knife Sharpening

A. MAJOR. The beveled edge of the knife should be ground to a 30° or 45° angle, the straight length of the knife to remove all nicks and notches.

B. MINOR. Between major sharpenings a hone may be used on the flat side of the knife cutting edge, evenly the full length of the knife.

Roller Chain Tightening

Adjust the tension on the feed table adjusting chain by sliding the adjustment bracket RB-45 on the base assembly.

TROUBLE SHOOTING

PROBLEM	CAUSE	POSSIBLE SOLUTION
Feed Roll pushes board out	Motor turning wrong way	Reverse motor rotation
Feed Roll turns, but board does not feed	Obstruction under feed roll bearing	Remove obstruction
	Feed Roll worn or damaged	Replace
	Build up of resin material on rollers	Remove resin (see maintenance)
Feed Roll turns in a jump motion	Too large of cut	Reduce cut
	Feed roll worn or damaged	Replace Feed Roll
	Main Drive V-Belt Loose	Adjust belt tension or replace belts (see maintenance)
	Drive V-Belt Slipping	Adjust or replace belt (see maintenance)
Feed Roll slips on board	Build up of resin on roller	Clean
	Spring tension low	Adjust compression tension springs (see maintenance)
Board hard to start	Cut too large	Take smaller cut
	Roller Tension too high	Adjust (see maintenance)
Feed Roll in-operative	Drive belt loose, off or broken	Adjust or replace Check for frozen brgs
	Set Screws loose in pulleys.....	Align & retighten set screws
Board Surface not smooth	Revolution marks in board	Knives not set uniform (see knife installation & adj.) Reduce Feed Speed to 11 F.P.M.
	Ridge or groove with direction of board travel	Check for nick in knife. (see adj. sharpen knives or realign)

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	Ridge or groove with direction of board travel	Check for nick in knife. (see adj. sharpen knives or realign)

TROUBLE SHOOTING (Con't)

PROBLEM	CAUSE	POSSIBLE SOLUTION
Board Surface not smooth	Large hunks torn out of board	Going against grain reverse board on the next feed
	Stripping or pealing of board	Lumber green - allow to dry
	Board cut deeper on one end or the other (Snip.)	Board not supported on end Add supports level with the bed to support lumber going in and coming out of machine.
	Press marks in wood	Wood chips & resin material built upon feed roll. A. Clean Feed Rolls B. Excess Chips thrown from machine & caught under feed rolls (see maintenance) Reduce the depth of cut (see maintenance) Special sharpening, knives & installation depth
Excess snipe or under cutting infeed or outfeed end of board	Board not supported on infeed or outfeed side	Support Board on infeed and outfeed side (314) Roller Stand.) Some snipe will occur by the release of roller pressure on board Saw board at an angle. See figure #5 Saw Square after planing

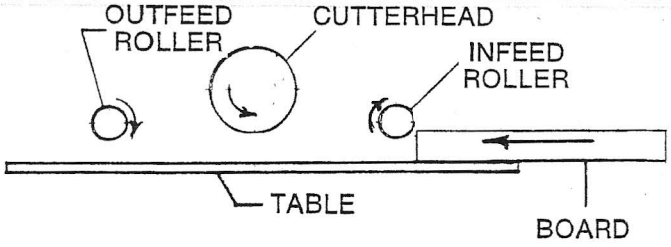


FIGURE I

SHOWING LEVEL OF BOARD INTO PLANER

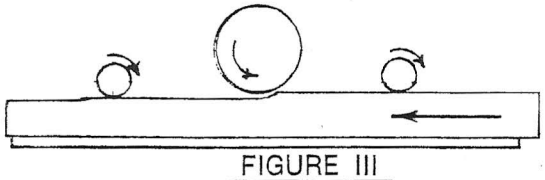
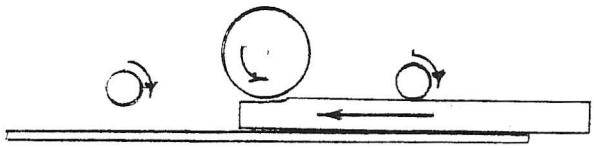


FIGURE III

SHOWS NORMAL PLANING, BOARD UNDER BOTH FEED ROLLS



LIFTING ACTION OF CUTTERHEAD ON BOARD

FIGURE II

SHOWING BOARD UNDER INFEED ROLLER AND CUTTERHEAD. ILLUSTRATES THE LIFTING ACTION OF CUTTERHEAD AND, OR LACK OF SUPPORT OF THE BOARD ON THE INFEED SIDE.

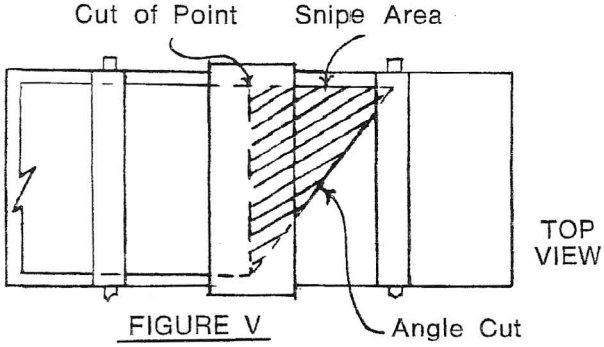
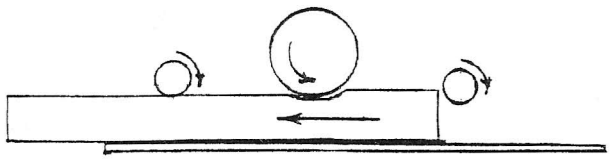


FIGURE V

SHOWING BOARD CUT ON AN ANGLE TO REDUCE SNIPE



PRESSURE RELEASED INFEED ROLLER

FIGURE IV

SHOWING LIFTING OF BOARD AND, OR LACK OF SUPPORT ON THE OUTFEED SIDE

TROUBLE SHOOTING (Con't)

PROBLEM	CAUSE	POSSIBLE SOLUTION
QUESTION: What is "snipe" and what causes it?	Board Thin	Use thicker board Take thin cut/pass
	Table corner screws allow up and down movement of table	Adjust table corner screws. Following table leveling instructions
		Butt Boards as they are fed into machine.
	ANSWER: Snipe is a deeper cut at the end of a board . . . usually the first and last 2 or 3 inches. All planers, regardless of make, tend to create snipe ranging in depth from 1/64" to 1/8". This is caused when a board enters the planer infeed roller, but has not yet reached the outfeed roller. While it is in this position and held down by only one roller, the planer blades tend to "pick up" the board as they cut, pulling it up into the blades. The same thing occurs when the board leaves the infeed roller and is held only by the outfeed roller. Our planers create less snipe than other models anywhere near their price range . . . less than many planers costing thousands of dollars more. Feed roll pressure is easily adjusted to allow for different types of wood, so it's possible to minimize or entirely eliminate snipe in most cases.	
Cutterhead Slows Down	Knives Dull	Sharpen
	Cut Too Deep	Reduce Cut Depth
	Motor Under Size	Larger Motor
	Low Current	Have Electrician Check
	Cutterhead Drive Belt Slipping	Tighten Belts or replace if necessary
Excess Vibration	Knives improperly adjusted	Adjust knives (see maintenance)
	Knives missing or damaged	Replace (see maintenance)
	Build up on cutterhead	Clean
	Drive Belts Damaged	Replace
	Drive Belts Loose	Tighten or lubricate (see maintenance)
	Planer Head Brgs. Bad	Replace
	V-Pulley, motor or cutterhead loose	Tighten
Motor won't start	Fuse Blown	Replace Fuse. Use delay type for 20A Check wiring size for motor. Rated Amps
	Thermal reset thrown	Let cool and push in reset button. If condition occurs a second time check motor for clogged vents. Clean, using vacuum or air hose.

ACCESSORIES

The Following Accessories Are Available At Additional Cost Should You Decide To Make Your Model 612 Planer More Versatile

MOLDING — USING YOUR MODEL 612 PLANER-MOLDER

The following is divided by the Bit or Knife to be used and the set up you prefer to use. These are outlined, with steps on the following pages, as to which steps to follow to set up the machine.

TO USE #1 — 13 BITS IN STANDARD PLANER HEAD

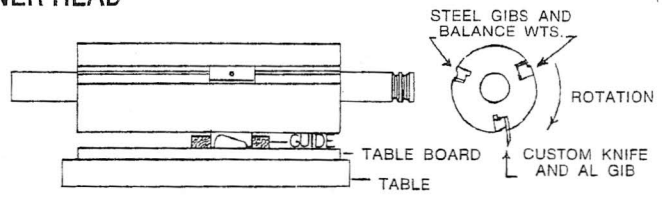
Proceed with the following steps:
Step #1
Step #2 A or B
Step #3
Step #8

Requires RB-133 Kit to use

RB-133 { 6-5¾″ gibs, 3-1″ gibs, 3-1″ spacer }

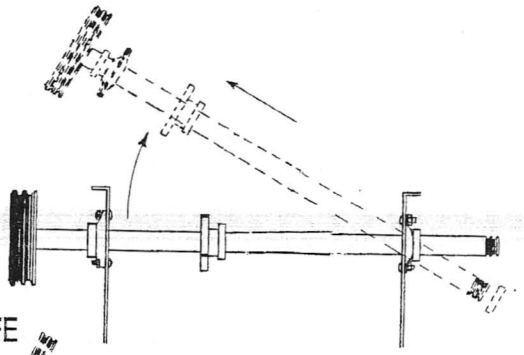
TO USE CUSTOM KNIVES (¼″) IN THE STANDARD PLANER HEAD

Proceed with the following steps:
Step #1
Step #2 A or B
Step #4
Step #8



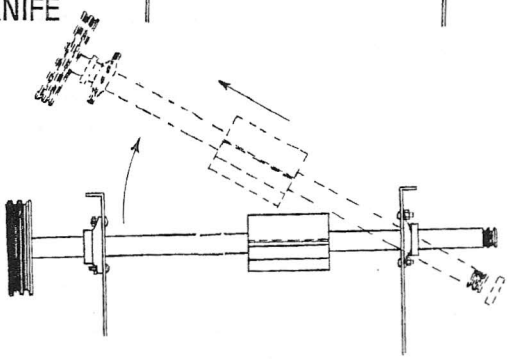
TO USE 600-A QUICK CHANGE MOLDING HEAD™

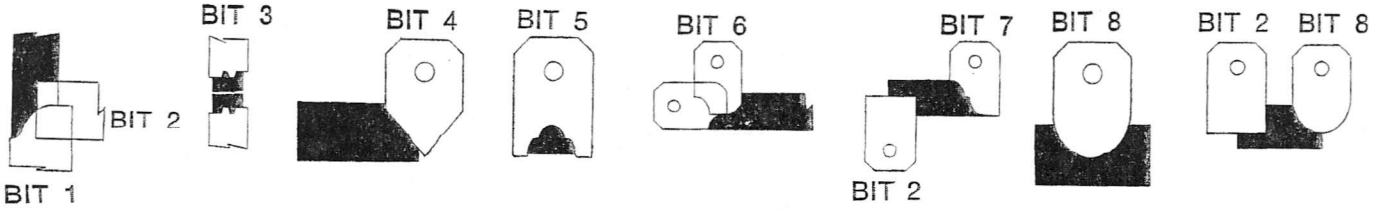
Proceed with the following steps:
Step #1
Step #2 A or B
Step #5
Step #6
Step #8

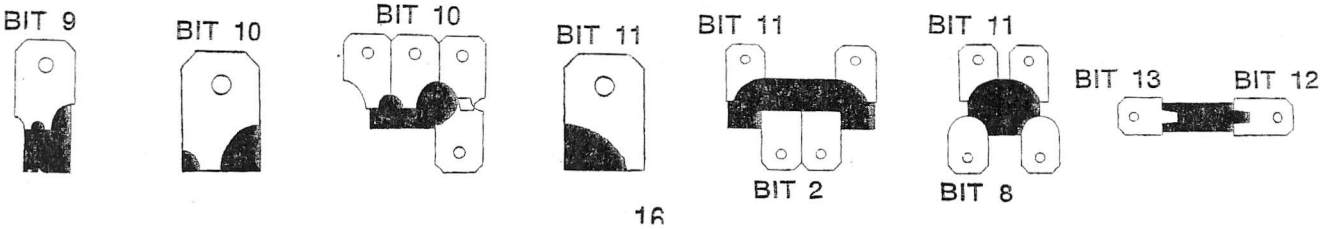


TO USE 600-A QUICK CHANGE MOLDING HEAD™ WITH 602-C KNIFE HOLDER *(Cannot be run without knife and gib installed)*

Proceed with the following steps:
Step #1
Step #2 A or B
Step #5
Step #7
Step #8





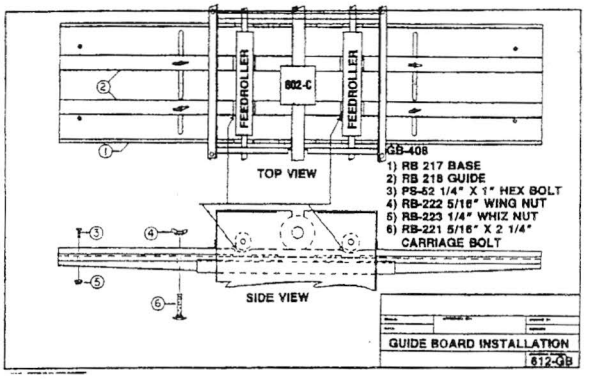


MOLDING: PREPARATION AND OPERATING INSTRUCTIONS

Step #1 **TABLE PREPARATION:** (to be done by operator before using machine)

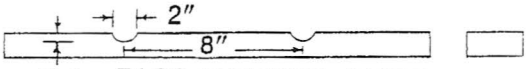
1. Disconnect electrical source.
2. Place a board ¾" x x12¼" x 42½" under the cutterhead (used to reduce accidental raising of the table into the bits or knives)
3. Center with the extension tables and secure, using bolts or clamps to the extension tables.

NOTE: Model 612 Planer Guide Board Assembly available from your dealer or direct from the factory. Pricing on request. Order Part #612-GB.



Step #2A **FACE MOLDING GUIDES:** (use the guide boards flat)

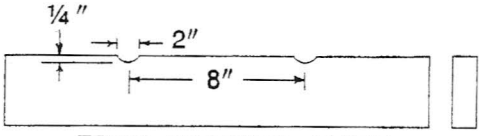
4. Use one inch boards 1" wide or wider 42½" long.
5. Center under the cutterhead and mark the feed roller locations on the face.
6. Cut ¼" deep arc to allow clearance of the feed rollers
7. Place guides under the cutterhead and at 90° to the cutterhead and secure with clamps or bolts.



¼" FACE MOLDING GUIDE

Step #2B **EDGE MOLDING GUIDES:**
(use the guide boards on edge
to be done by operator before using machine)

8. Use two inch wide guide boards with a height ½" or more, shorter than the board to be edge molded.
9. Center under the cutterhead and mark the feed roller locations on the edge.
10. Cut ¼" deep arc to allow clearance of the feed rolls.
11. Place guides under the cutterhead and at 90° to the cutterhead and secure with clamps or bolts.



EDGE MOLDING GUIDE

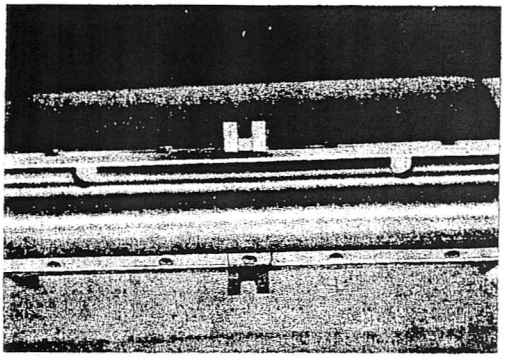
*INSTALLATION OF MOLDING BIT NO'S 1-13 IN MODEL 612 PLANER HEAD

Step #3

Requires RB-133 Kit to use

{ 6-5¾" gibs
3-1" gibs
3-1" spacer } RB-133

1. Disconnect electrical source.
2. Remove Hood.
3. Loosen the set screw (RZ-87) in the 1" R-369 Gib. (center of cutterhead)
4. Knock down the 1" gib using a flat object (large punch) and hammer.
5. Remove the spacer between the gib and the knife.
6. Slide one of the three bits in the set you select into the slot, replacing the spacer between the knife and 1" gib. Flat side of bit should face away from the planer knife R-958.
7. With bit completely down in slot, tighten the set screw in the 1" gib.
8. Repeat No. 3 through No. 8 in the other two cutterhead slots.



*Accessories for your model 612 planer-molder not included in the basic planer package, are available at additional cost.

9. Check to be sure all bits are down, screws tight and tools removed.
10. Replace Hood.
11. Connect electrical source.

*INSTALLATION OF STOCK CUSTOM MOLDING KNIVES AND SPECIAL CUSTOM MOLDING KNIVES IN THE STANDARD PLANING HEAD NOTE: (MAXIMUM KNIFE HEIGHT 1½")

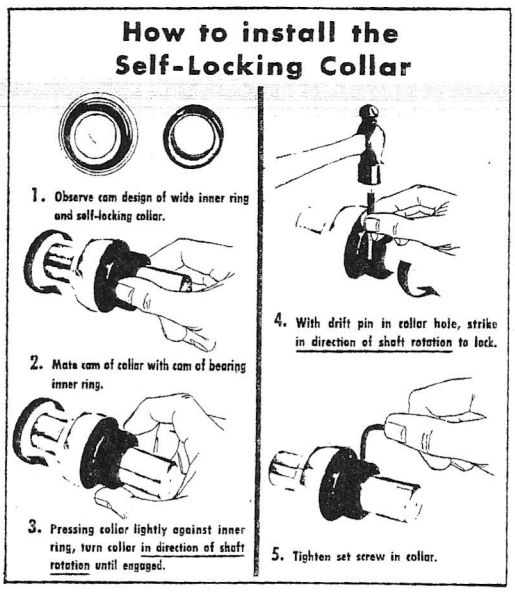
Step #4 **CUTTERHEAD KNIFE REMOVAL:**

See Cutterhead knife removal under adjustments and maintenance in the Planer Section.

*INSTALLATION OF STOCK CUSTOM OR SPECIAL CUSTOM MOLDING KNIVES:

Custom Knives supplied by us are balanced to fit in our 602-C Custom Knife Holder. Should you decide to use your planing head, additional balance weights and gibs are required and must be specified.

1. Clean slots, knives, gibs and spacers to remove wood chips, gums and protective coatings.
2. Turn slot upward and insert aluminum gib on the opposite side of the slot from jackscrews with the curved edge up, toward jackscrews.
3. Insert the ¼" knife with the beveled edge toward the jackscrews.
4. Tighten set screws being sure knife doesn't raise when tightening.
5. Repeat the above procedure in the remaining two slots with two exceptions. Use one steel gib and one steel spacer in each slot in place of the aluminum gib and knife. NOTE: Each knife comes with its own weights and gibs. These must be used together.
6. Tighten all set screws and remove all tools.
7. Check knife clearance by turning by hand. Minimum acceptable clearance ⅛"
8. Replace Hood.
9. Connect electrical source.
10. Multiple patterns can be run simultaneously by using more than one knife or a special knife with multiple patterns. Limiting factors are width of the head and table and horsepower of the motor.



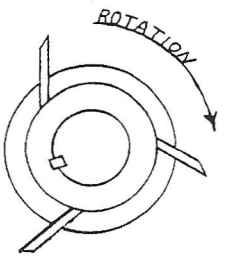
MOLDING CUTTERBITS, STOCK AND SPECIAL CUSTOM MOLDING KNIVES

*Step #5 **MODEL 600-A QUICK CHANGE MOLDING HEAD™ INSTALLATION**

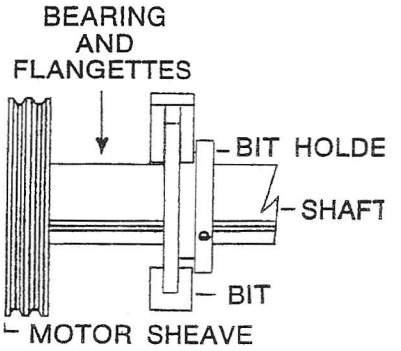
1. Disconnect electrical source.
2. Remove hood.
3. Loosen the lock collars of both cutterhead bearings and slide away from bearings. (Turn in the opposite direction of rotation)

Accessories for your model 612 planer-molder not included in the basic planer package, are available at additional cost.

4. Loosen the 4 bolts holding the bearing flangettes on both sides of the cutterhead. Remove the bolts on the motor pulley side.
5. Remove the motor drive belt. Slide bearing out, motor drive side.
6. Lift up the cutterhead, on the motor drive side. Remove the reduction drive belt and lock collar, slide the cutterhead out of the bearing on the reduction drive side. (CAUTION: KNIVES ARE SHARP)
7. Set planer head aside. (An option available is the 600-AS Cutterhead Stand for holding the cutterhead to prevent damage to the knives.)
8. Model 600-A Quick Change Molding Head™ Assembly contains one 602 bit holder. If more than one, or if 602-C Custom knife holder are to be installed, this must be added to the shaft before assembly. **see figure for correct installation.**
9. Slide the Quick Change Molding Head™ assembly into the bearing, reduction side of machine. Add lock collar and belt.
10. Lower drive pulley side of molding head, bearing and flangettes to the outside of the planer side.
11. Install bearing flangette bolts and tighten both sides.
12. Align belts and lock lock collars (turn in direction of rotation) and tighten set screws.
13. Attach drive belts.
14. Proceed to bit installation or custom knife installation.



VIEW REDUCTION DRIVE SIDI



Step #6 **BIT INSTALLATION IN 602 BIT HOLDER**

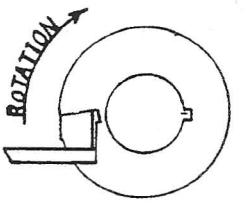
1. Disconnect electrical source (CAUTION: KNIVES ARE SHARP.)
2. Remove Hood.
3. Slide bit in slot, leading edge of bit bevel set to cut with assembly turning CCW facing motor sheave end. (See Figure)
4. Secure by tightening hold in screw.
5. Repeat for the other two cutterbits and tighten.
6. Check knife clearance by turning by hand, minimum clearance 1/8 ″
7. Proceed to positioning board under cutterbit or custom knife.

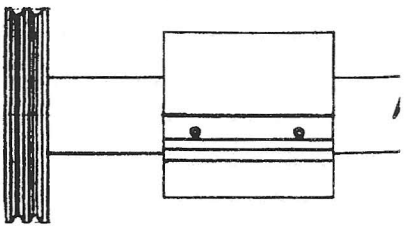
CAUTION
CANNOT BE RUN WITHOUT KNIFE AND GIB INSTALLED
KNIFE TO HAVE NO MORE THAN ¼" HANGOVER OF CUSTOM KNIFE HOLDER

*Step #7 **CUSTOM KNIFE INSTALLATION IN 602-C CUSTOM KNIFE HOLDER** (Gibs are supplied with each knife)

Custom Knives supplied by us are balanced to fit in our 602-C Custom Knife Holder. Should you decide to use your planing head, additional balance weights and gibs are required and must be specified.

1. Disconnect electrical source. (CAUTION: KNIVES ARE SHARP.)
2. Remove Hood.
3. Place proper weighted gib in the slot, radius away from the center line.
4. Slide the knife in the slot on the gib radius side. Long bevel to the leading edge, CCW rotation facing motor shaft end. (See Figure)
5. Tighten gib set screws being sure knife is down in slot.





6. Check knife clearance by turning by hand. Minimum clearance 1/8".
7. Proceed to positioning board under cutterbit or custom knife.

Step #8 **POSITIONING BOARD UNDER CUTTERBIT OR CUSTOM KNIFE**

1. Disconnect electrical source.
2. Adjust board guides to the thickness of the board and anchor. (To be square 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 in its deepest cutting depth.
4. Raise the bed up until the desired depth of cut is reached on the molding bit or knife. Slide the cutterbit head or custom molding head along shaft for proper alignment and tighten set screws being sure keys are in place. If planer head is used, it will be necessary to slide board guides for alignment to the bit or knife. (NOTE: Cut must be deep enough that ample pressure is applied on the board to hold it securely by both the infeed and outfeed rollers)
5. Crank the table down until the board will slide from under the feed rollers. Count the number of turns of the crank that are required.
6. Be sure all bolts, etc. are tight and tools removed.
7. Replace the hood and connect electrical source.
8. Turn machine on.
9. Crank table up the same number of turns as it was turned down in procedure #5 above.
10. Feed Board into machine.
11. Minor adjustments may be required dependent on what is desired.

TONGUE AND GROOVE

QUARTER ROUND

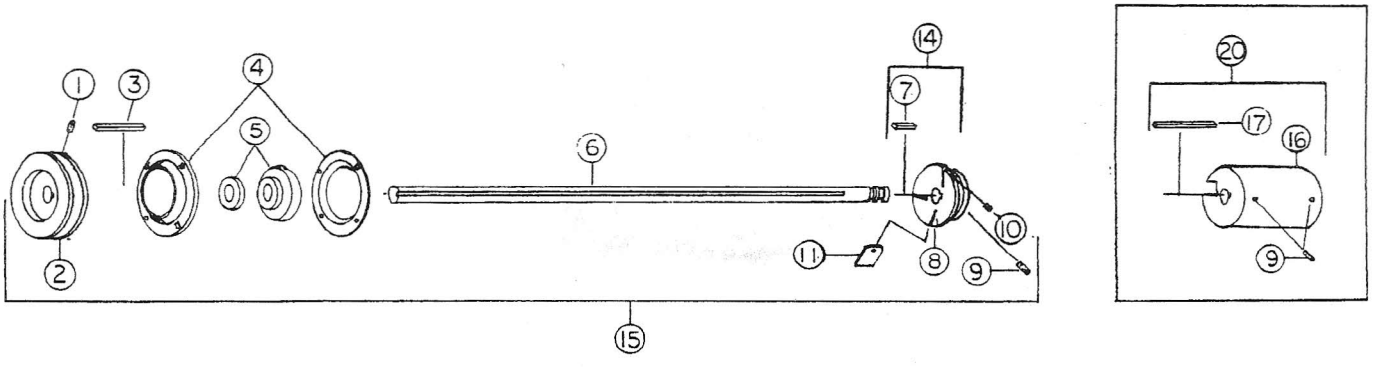
*UNITIZED PARTS LIST FOR MODEL 600-A QUICK CHANGE MOLDING HEAD™ AND CUSTOM KNIFE HOLDER ASSEMBLIES

When ordering repair parts, always give Model Number, Part Number and Name as shown in this parts list. Do not use Key Numbers when ordering Repair Parts, always use Part Number, See How to Order Parts, Page 28.

15	600-A	QUICK CHANGE MOLDING HEAD™ ASSEMBLY	
1	RZ-185	Set Screw	2
2	RB-115	V-Pulley	1
3	RZ-89	Key 3/8" Sq x 1½"	2
4	RB-10	Bearing Flangette	2
5	RM-2	Bearing and Lock Collar	1
6	RB-41	Shaft	1
8	RB-42	Bit Holder	1
9	RZ-185	Bit Holder Attaching Set Screw	1
10	RB-403	Bit Holding Set Screws	3
11	Bit #?	Random Set (3 pieces)	1 Set

	14	602	Bit Holder Assembly
Extra Bit Holders May be Purchased			1 - RZ-89 Key #7 Key 1 1 - RB-42 Key#8 Bit Holder 1 1 - RZ-185 Key #9 Bit Holder Attaching Set Screw 1 3 - RB-403 Key #10 Bit Holding Set Screws 3

	20	602-C	Custom Knife Holder Assembly (NOTE: Knife and gib come together as a balanced set)
Must Be Purchased Separately Not included in 600-A Quick Change Molding Head™			2 - RZ-185 Key #9 Set Screws 2 1 - RB-40 Key #16 Custom Knife Holder 1 1 - RB-605 Key #17 Key 1



MODEL 612-S

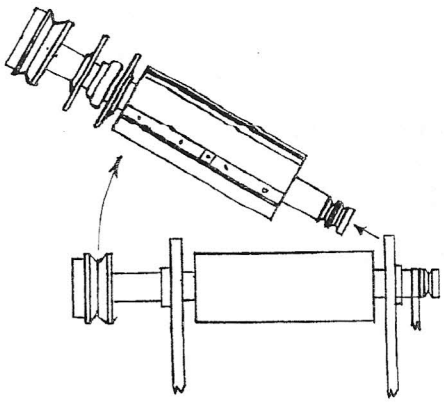
SANDING ACCESSORY

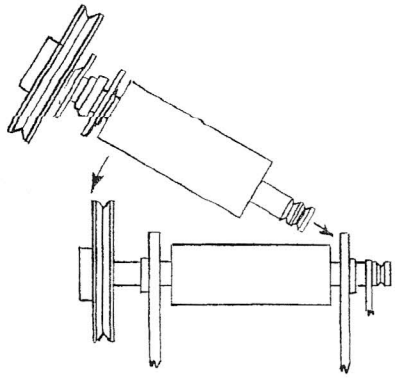
SHIPPING CONTENTS:

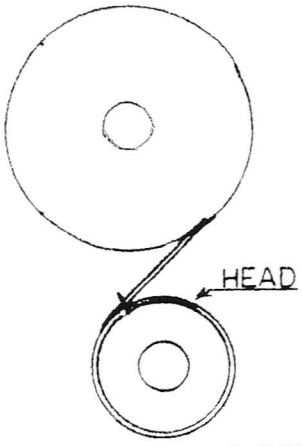
1 — Sanding Head Assembly
1 — Extra Length of Sand Paper
1 — Abrasive Cleaner Strip
1 — Drive Belt

SANDING HEAD INSTALLATION

1. Disconnect electrical source
2. Remove the hood
3. Loosen the lock collars of both cutterhead bearings and slide away from bearings. (Turn in the opposite direction of rotation to loosen)
4. Loosen the bolts, holding the bearing flangettes, on both sides of the cutterhead. Remove the bolts on the motor pulley side
5. Remove the motor drive belts
6. Lift up the cutterhead, on the motor drive side. Remove the reduction drive belt and lock collar, slide the cutterhead out of bearing on the reduction drive side. (CAUTION: KNIVES ARE SHARP)
7. Set planer head aside. (An option available is the 600-AS Cutterhead Stand for holding the cutterhead to prevent damage to the knives)
8. Slide the Sanding Head assembly into the bearing, reduction side of machine. Add lock collar and belt. NOTE: USE FAST FEED SPEED ON MODEL 612. CONSULT OPERATORS MANUAL FOR FEED CHANGE.
9. Lower drive pulley side of Sanding Head, bearing and flangettes to the outside of the planer side
10. Install bearing flangette bolts and tighten both sides. (Tighten)
11. Align belts and lock, lock collars (turn in direction of rotation to lock) and tighten set screws.
12. Attach drive belt.
13. Proceed to sanding paper installation



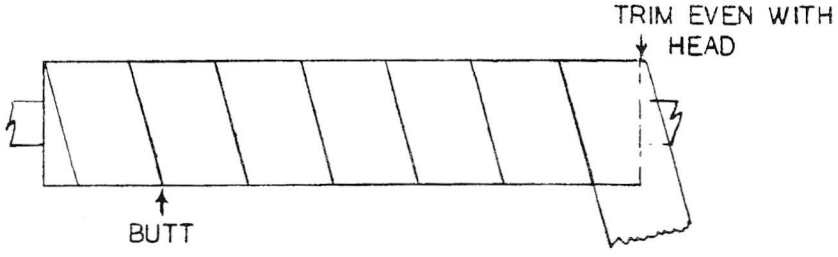


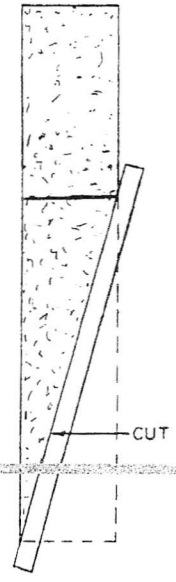


WRAP SAND PAPER AROUND HEAD AND MARK CIRCUMFERENCE

SANDING PAPER INSTALLATION
(Length required: Model 612-67″)

1. Unwind three or four feet of sand paper
2. Wrap the sand paper around the head one time and mark where the end meets the wrap around
3. Remove from the head and mark on the diagonal using a straight edge. Cut on the diagonal
4. Apply sand paper to the head in a spiral, starting with the diagonal cut edge, along the edge of the cutterhead and turn the cutterhead one revolution, then align to the edge of the sand paper. For Pressure Sensitive Adhesive Sand Paper, remove the paper from the back before installing.
5. At the opposite end, trim the paper to the edge of the head



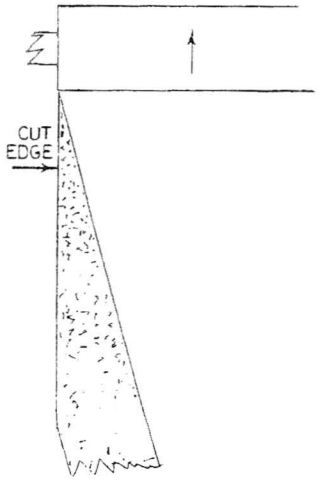


6. Check to make sure edges are down (You can wrap tape approximately 1½″ turns around both ends)
7. Replace the hood and connect electrical source.

SANDING

WITH THE MACHINE TURNED OFF

1. Place the board. (Minimum length 9″) to be sanded under the infeed roller.
2. Turn the crank handle to raise the table so the board just contacts the roller.
3. Remove the board
4. Turn the table crank up five turns. (This will allow you to be close to the sanding head)



TURN THE MACHINE ON

5. Start the board into the machine straight
6. After the board is under the cutterhead, slowly raise the table until the board contacts the sanding head (1 to 3 turns)
7. Repeat feeding the board through again, raising the table no more than ⅛ turn of the crank (.0075″) for each pass. The less the cut the better the finish. Also as the paper wears down, the finish will improve. Do not sand wood with nails or other metal objects in them, due to fire & dust explosion hazzard.

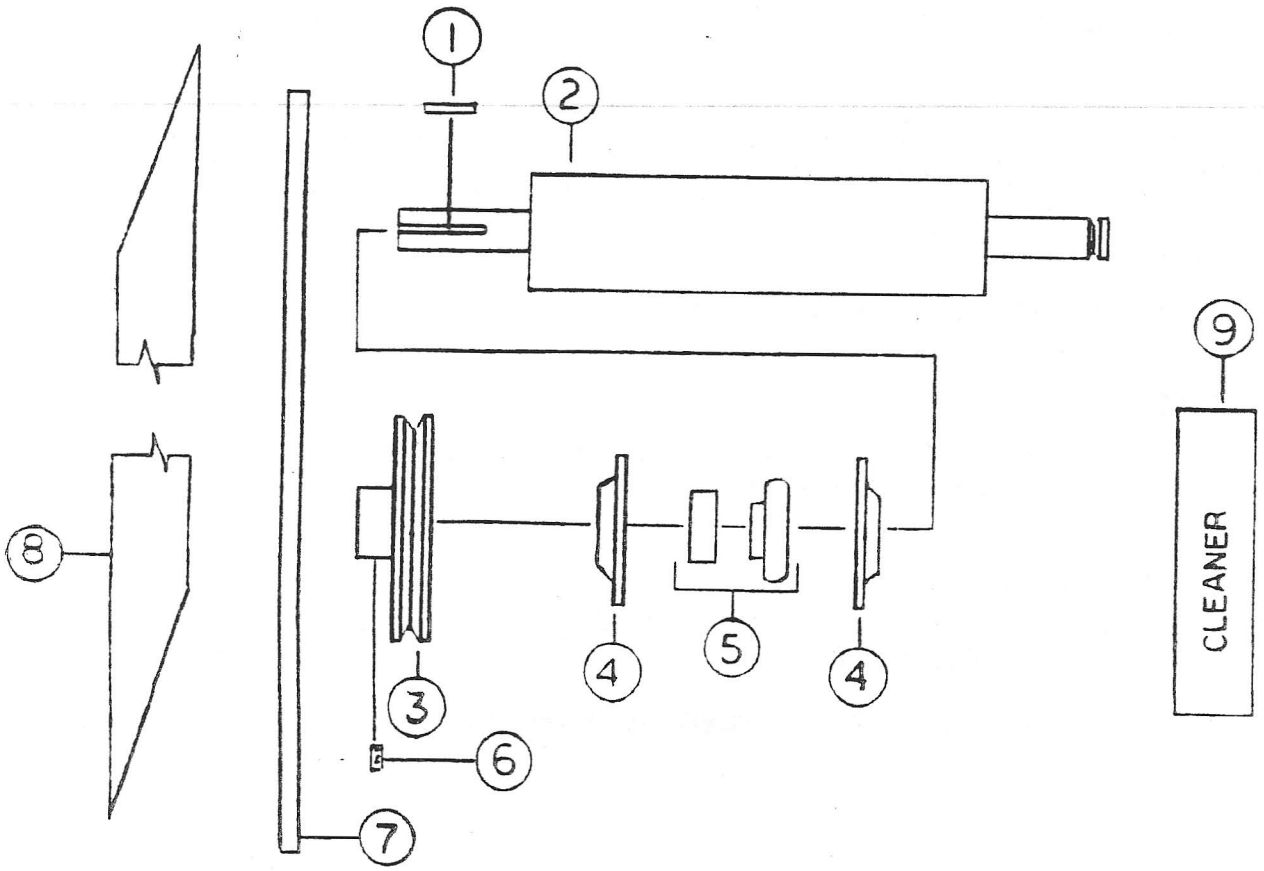
HINTS

1. Some woods, such as pine, which have large amounts of gums and resins will load up the paper almost immediately and give poor results. These types of woods are not recommended for sanding.
2. To remove loaded material from the sand paper, you can use the abrasive belt cleaner. This does an excellent job
3. Use the sanding head unit to finish your predimensioned boards or to remove up to 1/16" of material. This will add much more life to your sand paper
4. The lighter the cut or sanding pass, the smoother the surface.

MODEL 612 PARTS LIST

Key	Part #	Description	Quantity
1	RZ-89	Key	1
2	S-12-02	Head	1
3	S-12-03	Pulley	1
4	RB-10	Flangette	2
5	RM-2	Bearing with Locking Collar	1
6	RZ-185	S/S	2
7	S-12-04	Belt	1
8	S-12-05	Sand Paper	2
9	S-8-12	Abrasive cleaner Stick	1

612-S PARTS BREAKDOWN



*ACCESSORIES

The following is a list of the increasing number of accessories available for use with your RBI Planer-Molder. For pricing and additional information, consult your dealer or the factory.

1. 600-A QUICK CHANGE MOLDING HEAD™ ASSEMBLY

This Assembly replaces the standard planer head for molding as a quick change unit, eliminating removal of the planer knives. Assembly accepts Bits #1-13. More than one bit holder can be used at once.

2. 602-C CUSTOM KNIFE HOLDER

To be used on the shaft of the 600-A Quick Change Molding Head™ assembly for holding ¼" custom knives. More than one can be used at one time.

3. BIT #1 - 13

Special 5/32" Thick, 1" wide wood molding bits offered in thirteen different sets. Each set containing three identical bits. Each set is a different design and cna be used for edge molding or face molding. Different combinations can produce unique designs of your own origination. See molding section of operators manual for ways to use.

4. WOOD MOLDING PATTERN KNIVES (WM-Series)

Special ¼" knife steel ground to correct height to produce standard wood molding, WM Series. Also available as special design molding from scale drawing or samples. Supplied with balanced gibs and weights as required for each. For a complete listing, contact your dealer or the factory.

5. 600-AS STAND

Formed metal unit for holding the planer orQuick Change Molding Head™ assemblies to reduce damage to the knives and bits.

6. KNIFE GUAGE Pat. Pend.

Allows planer knife setting by sight or feel. Provides highly accurate knife adjustments.

7. 532 JOINTER

Jointer assembly comes preassembled for quick attachment to the Model 612 Planer-Molder. Gives the planer the added capability of jointing and planing with no change over. The table width is 8", Length 32", maximum cut 1/8" with a 4" fence, adjustable 45° to 90°. Makes use of the planer knives for jointing.

8. 314 EXTENSION ROLLER

Adjustable ball bearing support for boards into and out of the planer. Adjusts from 21" - 39" with three support legs. Handles weights up to 250#.

9. 612-S SANDING HEAD

Quick-change sanding head assembly comes with head, bearing, flangettes; and pulley on one end ready to install in place of the planing or molding head. Comes with sanding paper installed, one extra strip sand paper and cleaner stick.

10. 612-GB GUIDE BOARD ASSEMBLY

13½" wide by 42" long particle board with sides and two guide boards all drilled for monotoring. Guides are fully adjustable for all molding operations.

Accessories for your model 612 planer-molder not included in the basic planer package, are available at additional cost.

WOODS AND THEIR CHARACTERISTICS

The following is a listing of some of the more popular woods; how they are classified; their work-ability and woodworking uses.

SOFT WOODS

Basswood

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

Cedar

Light, fine texture, and beautifully grained. Easily worked and finished. Used for moth-proof chests and closets, toys, furniture, and many other purposes.

Cypress

Soft and easy to work. Its rich, reddish brown color makes it particularly well-suited for furniture. Being strongly weather-resistant, it is extensively used for posts, etc.

Fir

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

Gum

Heavy, strong, and of fine texture. Is usually cross-grained. Brown to yellow in color. Easily twists and warps when exposed. Used extensively for interior finish and many small articles.

Poplar

Light, very soft and of fine texture. Gray to yellow in color. Easy to work but not durable. Used for furniture that will not be subjected to rough handling.

Redwood

Light, fairly strong, and takes a fine finish. Sapwood is whitish; hardwood is light red, turning to brown upon exposure. Very durable. Used largely for cabinet work.

White Pine

Very light and soft. Differs greatly in quality. Usually quite durable. If well-seasoned, resists boring insects. Exceptionally easy to work. Uses are almost unlimited.

White Spruce

Light, stiff and fairly strong. Easy to work, and splits well. Used largely for musical instrument sounding boards, but can often be used for same purposes in white pine.

HARD WOODS

Ash

Heavy, strong and tough. Resembles oak, but is coarser grained and easier to work. Gets brittle with age. Take a fine finish. Suitable for all kinds of furniture.

Beech

Heavy, strong and of coarse texture. Works well and takes a good polish, but tends to shrink and check in drying. Used extensively for furniture.

Birch

Heavy, tough and close grained. Very durable. Frequently stained to imitate black walnut and mahogany. Excellent for lathe turning and furniture.

Chestnut

Light, medium hard, but not very strong. Has a coarse texture. Easy to saw, turn and plane. Inclined to shrink, split and check in drying. Used for cabinet work.

Mahogany

Light to dark reddish brown. Fine grained, with many cross grains. Can be worked easily. Takes beautiful finish. Has many imitations. Used largely for furniture.

Maple

Heavy, strong and very hard. Fine texture, wavy grained. Excellent for carving, turning and scroll work. Widely used for furniture and paneling.

Oak

Very heavy, hard, strong and durable, but shrinks and checks badly. When quarter sawed produces a smooth, attractive finish. Many uses: Furniture, carving, common carpentry, etc.

Walnut

Heavy, hard, and strong. Smooth grained, works well, and takes a fine polish. Used largely for cabinet making, furniture and as a veneer.

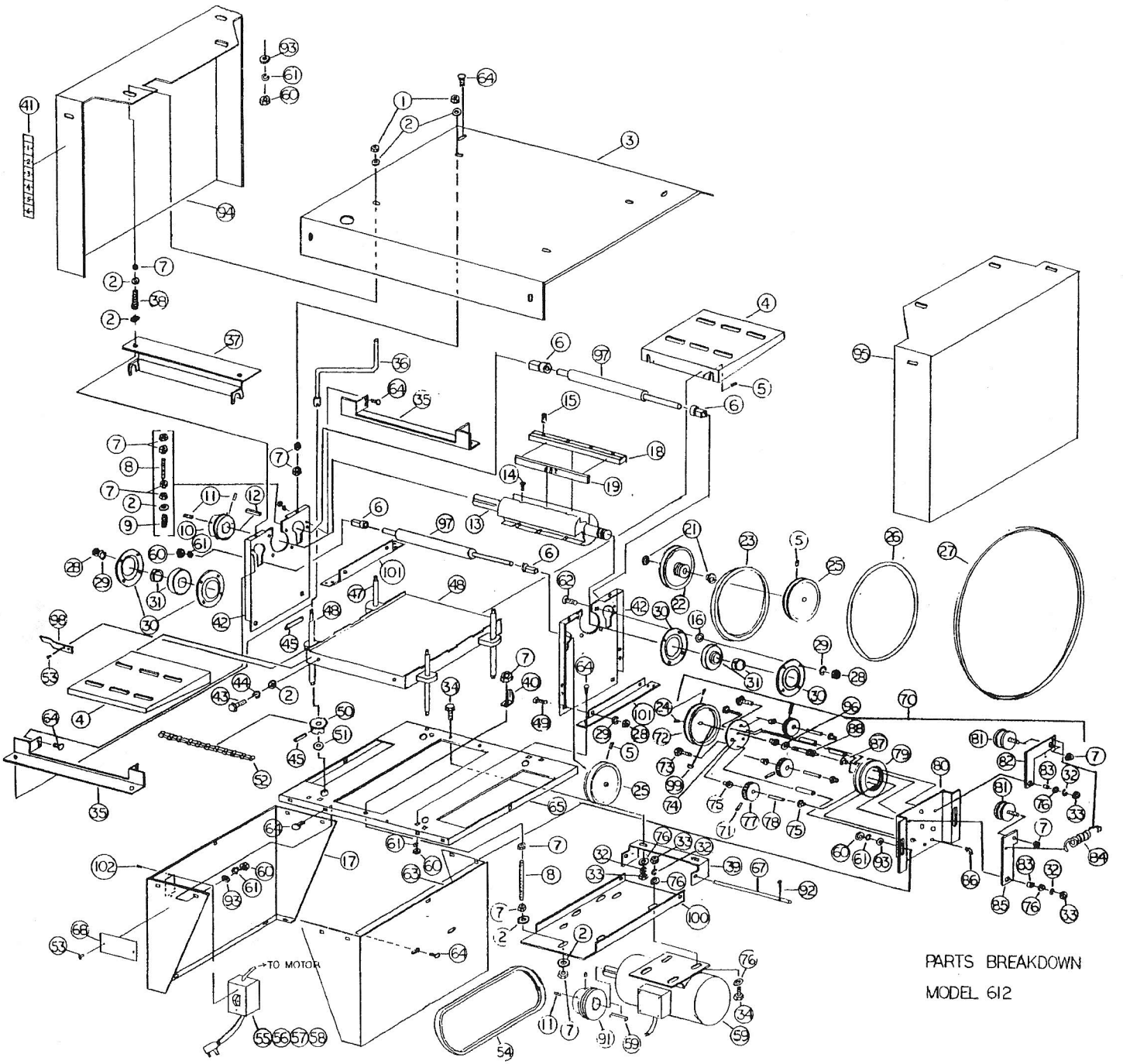
Yellow Pine

Varies considerably. Light, medium hard, and with a smooth but strongly marked grain. Works easily, and is quite durable. Many uses.

UNITIZED PARTS LIST — PLANER NO. 612

When ordering repair parts, always give Model Number, Part Number and Name as shown in this parts list. Do not use Key Numbers when ordering Repair Parts always use Part Number, See How to Order Parts, Page 31.

Key No.	Part No.	Description	Qty.
1	RZ-58	3/8-16 Hex Nut	11
2	RZ-50	3/8" Flat Washer	20
3	RB-48	Hood	1
4	R2S5	Extension Table	2
5	RZ-83	Set Screws 1/4-20x1/4"	6
6	RS-57	Feed Roll Bearing	4
7	RZ-73	3/8-16 Jam Nut (Feed Roller)	26
8	RB-47	3/8-16x4" Threaded Rod	4
9	RS-19	Feed Roll Tension Spring	4
10	RB-139	V-Pulley	1
11	RZ-185	5/16"-18x5/3/16 Set Screw	2
12	RZ-89	Key 3/8" Sqx1 1/2"	1
13	R-370-B	Cutter Head	1
14	RZ-182	1/4-28x3/4" Flat Hd. Socket Set Screw	9
15	RZ-87	Set Screw 3/8"-24x5/8"	12
16	RB-131	Spacer	8
17	RB-136	Skirt R.H.	1
18	RB-132	Gib 12 1/2"	3
19	R-958	Planer Knives	3
21	R-368	Bronze Flanged Bearing 5/8" I.D.	2
22	RB-153	Dual V-Pulley	1
23	RB-162	V-Belt	1
24	RB-161	1/4"-20 Set Screw	3
25	RB-91	Feed Roll Pulley	2
26	RB-147	Belt Reduction drive	1
27	RB-148	Feed Roll drive belt	1
28	RZ-69	1/2"-13 Hex Nut	14
29	RB-11	1/2" Lock Washer	12
30	RB-10	Bearing Flangette	4
31	RM-2	Ball Bearing and Eccentric Collar	2
32	RZ-178	5/16" Split Lock Washer	10
33	RZ-81	5/16"-18 Hex Nut	14
34	RZ-181	5/16-18x1" Hex Head Bolt	14
35	RB-130	Top Bar	2
36	RB-84	Crank	1
37	RB-32	Chipbreaker	1
38	R-54F	Spring Top Chipbreaker	2
39	RB-118	Motor Pivot Brkt.	1
40	RB-45	Chain Tightner Bracket	1
41	RB-50	6" Scale	1
42	RB-122-Z	Planer Side	2
43	RBZ-202	3/8"-16x1" Hex Hd Bolt	5
44	RZ-71	3/8" Lock Washer	9
45	RZ-59	1/4x1 1/8" Roll Pin	5
46	RS-34-A	Corner Crank Screw	1
47	RS-5-A	Corner Screw	3
48	RE-101-B	Table	1
49	RB-35	1/2"x1" Hex Hd. Bolt	4
50	RS-4	Sprocket	4
51	RS-549	Machine Washer 5/8" I.D.	4
52	RS-41	#45 Chain	1
53	RZ-52	Drive Screws	4
54	RB-140	Drive Belt Motor	1
55	RB-26	Plug in Wire	1
56	RB-37	Mnaual Starter Switch	1
57	RB-38	Manual Starter Switch Enclosure	1
	RB-29	Assembly of RB-37 and RB-38	
58	RB-25	Motor to Starter Wire	1
59	RB-22	Motor 3 H.P. 3450 R.P.M. with Key	1
60	RBZ-208	1/4"-20 Hex Nut	32
61	RBZ-207	1/4" Lock Washer	32
62	RZ-68	1/2"-13x1 1/2 Carriage Bolt	8
63	RB-137	Skirt LH.	1
64	RB-99	1/4-20x1/2" Carriage Bolt	32
65	RB-142	Base Top	1
67	RB-119	Hinge Rod	1
68	RB-23	Serial # Tag	1
69	RB-155	Support Reduction Drive	1
70	RB-156	Reduction Drive Assembly	
71	RB-71	3/16-18x1 1/4" Roll Pin	3
72	RB-88-Y	Reduction Input Sheave	1
73	RBZ-203	5/16-18x2" Hex Head Bolt	3
74	RB-89	Gear Box Back Plate	1
75	R-369	1/2" Bronze Bushing Flanged	7
76	RB-150	5/16" Fl Washer	10
77	RB-68	Gear Box-Internal Gear	3
78	RB-96	Internal Gear Shaft	3
79	RB-95	Internal Gear V-Sheave	1
80	RB-67	Gear Box Face Plate	1
81	RB-62	2" Idler Pulley	2
82	RB-145	Idler Arm Feed Roll Bracket	1
83	RB-158	Spacer Idler Arm Pivot	2
84	RB-63	Idle Spring	1
85	RB-146	Idler Arm Reduction drive slow speed	1
86	RBZ-210	90° Zert	1
87	RB-73	Flanged Bronze Bearing 3/8" I.D.	1
88	RB-90-Y	Gear Box Drive Pinion	1
91	RB-138	Motor Sheave	1
	RB-27	Decal Group	1
92	RB-120	Cotter Key	1
93	RB-177	1/4" F/W	16
94	RB-09	L.S. Driveguard	1
95	RB-08	R.S. Driveguard	1
96	RB-160	Pinion Bushing	1
97	R-352-A	Feed Roller	2
98	RB-74	Pointer	1
99	RB-57	Woodruff Key	1
100	RB-117	Motor Mount	1
101	RB-135	Side Mount Brkt.	2
102	RB-134	Screw #6-32	2
	RB-141	Switch Cover Plate	1



PARTS BREAKDOWN
MODEL 612