



# Rockwell

MANUFACTURING COMPANY

The Rockwell Building • Pittsburgh, Pa.

418-02-651-0001

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PM-1538

## 37-290 4" DELUXE JOINTER

Delta jointers are carefully tested and inspected before shipment and if properly used will give excellent results. To receive the utmost from your machine, read the following instructions carefully.

Mount the jointer on Delta stand Cat. No. 50-304 or a sturdy bench. The motor can be mounted on a shelf below the jointer or behind the jointer. Assemble motor pulley Cat. No. 5650 on motor shaft. Be sure motor and arbor pulleys are in line.

The Delta No. 37-290, 4" Deluxe Jointer is shipped complete with swing guard, fence, cutter head and arbor pulley.

### CONSTRUCTION FEATURES

The cutter head of this jointer runs in sealed ball bearings which need no lubrication throughout their life. It carries three high speed steel knives which are easily adjusted and securely locked in their dove-tail grooves.

The fence is finish ground to increase accuracy, and is heavily ribbed for rigidity and to prevent warping.

The fence can be easily locked in any position across the table, and can be tilted 45° right or left. It is also provided with an adjustable stop so the fence can be returned at right angles to the table.

Front and rear tables are finish ground after assembly on the base. This additional operation assures the true alignment necessary for accurate work and is a feature usually found only in the larger and more expensive machines.

### MOTOR, PULLEYS AND BELT

We recommend our No. 60-013  $\frac{1}{3}$  H. P., 115 volt, 60 cycle, 1725 R. P. M. bronze bearing motor with  $\frac{1}{2}$ " shaft for medium duty work.

For heavy duty work use a No. 62-413,  $\frac{1}{3}$  H. P. 1725 R. P. M. capacitor motor, 60 cycle, single phase, 115 volts, alternating current only.

Consult your Delta dealer for the correct motor if the electric current available is different from that indicated above.

Speed of the cutter head should be about 4000 rpm for best results. The correct speed is obtained with the No. 60-013 or 62-413 motor by using the  $6\frac{1}{2}$ -inch motor pulley No. 5650 in conjunction with the  $2\frac{3}{4}$ -inch cutter head pulley J-17-S which is furnished on the jointer.

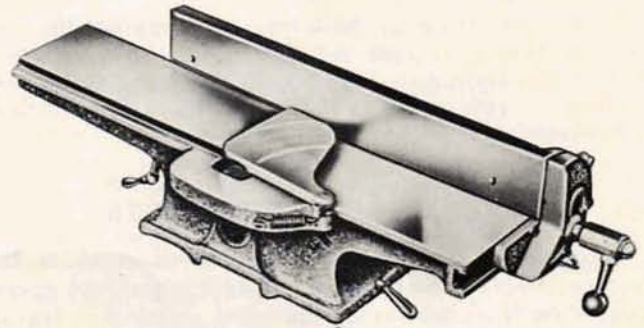


Fig. 1.

For any other motor, order a pulley of the correct bore to fit the shaft, give the speed of the motor, and specify that you want the right diameter for running a  $2\frac{3}{4}$ -inch drive pulley at approximately 4200 rpm.

The cutter head must rotate forward on top. If your motor runs in the wrong direction, reverse it according to the manufacturer's instructions, or in the case of a double-shaft motor, turn it end for end.

The No. #560 V-Belt, offered for use with this jointer, has an outside circumference of  $58\frac{1}{4}$ " inches. It will accommodate the usual installations. Consult your Delta dealer if you need a belt of other length to fit special conditions.

### MOUNTING AND ASSEMBLING

The jointer, shown in Fig. 1, is shipped complete in a single package marked No. 37-290. It consists of two units, the body and the fence. The knife guard and a wrench for the lock screws of the cutter head are included. The motor and other items of your order are supplied in separate packages.

In choosing a location for the machine, be sure to allow clearance in front of and behind the tables for jointing long pieces.

A portable unit can be made by mounting the jointer and motor on a 2 x 12-inch dressed plank 30 inches long. It may be placed on any convenient work table for operation and stored on a shelf when not in use. 2-inch blocks must be inserted under the jointer base for such mounting, to raise the machine so that the motor can be placed directly back of the rear table and to allow removal of chips. Use long bolts through the base, blocks and plank.

Some operators prefer to mount the motor on a shelf below the bench. In such installation, run the belt through a slot in the bench top, or locate the machine and motor so that the pulleys extend beyond the edge. Arrange a chute for the chips, so that they do not fall onto the motor.

Having decided upon the arrangement most suitable for your needs, set the jointer body in its proposed position. Install the motor pulley and drive belt. Locate the motor so that the pulleys are in line, with the shafts parallel and the belt tight enough to prevent slipping. Mark and drill the mounting holes. Use ordinary carriage bolts of proper length for fastening the machine and motor.

Mount the fence on the jointer by slipping the cross slide bracket into the slot under the front table. Install the knife guard J-13-S on the front table, connecting the coil spring as shown in Fig. 1. The machine is now ready for adjustment and operation.

### OPERATING ADJUSTMENTS

Although the jointer is carefully adjusted at the factory, it should be checked before it is put into operation. Any inaccuracies due to parts shifting in transit can easily be corrected by following these directions:

#### Rear Table and Knife Adjustment

For accurate work in most jointing operations, the rear table must be exactly level with the knives at their highest point of revolution. This means, of course, that the knives must be parallel to the table and project equally from the cutter head.

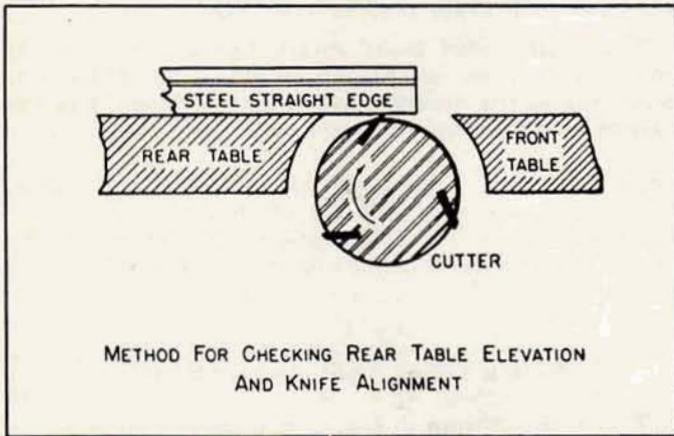


Fig. 2.

To check the adjustment, place a steel straight edge on the rear table, extending over the cutter head as shown in Fig. 2. Rotate the cutter head by hand. The blades should just touch the straight edge. If a knife is high or low at either end, loosen its lock screws J-23 slightly, shift the blade until it just touches the straight edge, and tighten securely.

Raise or lower the rear table as required, by turning the hand knob BM-4-S. After it has been set at the correct height, it should not be changed, except for special operations and after sharpening knives.

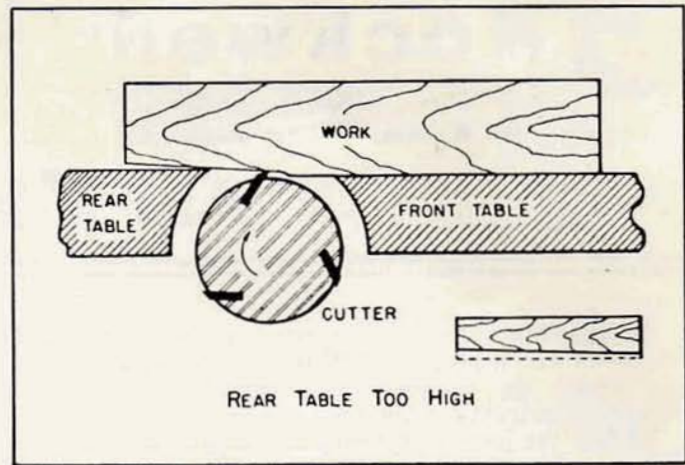


Fig. 3.

If the rear table is too high, the result will be as shown in Fig. 3; the finished surface will be curved. When the rear table is too low, the condition will be as illustrated in Fig. 4; the work will be gouged at the end of the cut.

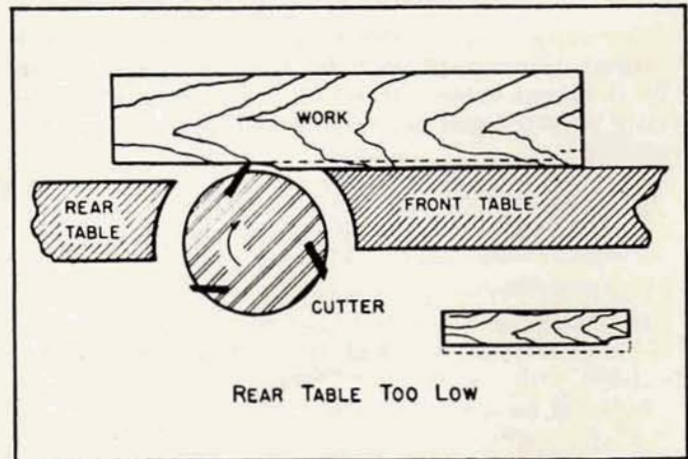


Fig. 4.

As a final check of the rear table adjustment, run a piece of wood slowly over the knives for 6 to 8 inches; it should rest firmly on both tables, as shown in Fig. 5, with no open space under the finished cut.

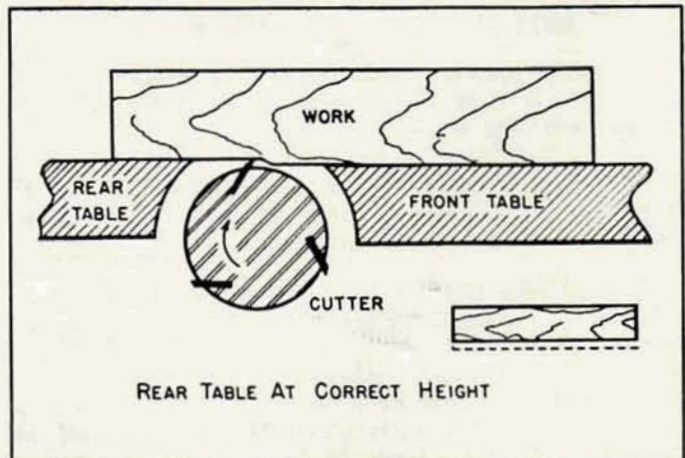


Fig. 5.

### Depth of Cut

The amount of material removed by a single cut can be any thickness from a very thin shaving to  $\frac{1}{4}$  inch. Adjust for depth of cut by raising or lowering the front table, using the hand knob BM-4-S, on the front of the base.

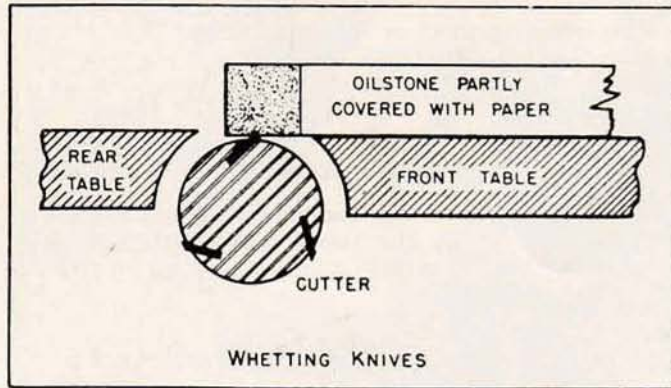


Fig. 6.

### Whetting Knives

Use a fine carborundum stone; cover it partly with paper as indicated in Fig. 6, to avoid marking the table. Lay the stone on the front table, lower the table and turn the cutter head forward until the stone lies flat on the bevel of the knife, as shown. Hold the cutter head from turning, and whet the bevelled edge of the knife, stroking lengthwise by sliding the stone back and forth across the table. Do the same amount of whetting on each of the three blades.

### Fence Adjustments

Crank handle, BM-4-S, under the infeed (front) table is used to regulate the thickness of cut. The rear crank handle is used to adjust the height of the out-feed (rear) table.

The fence can be moved across the table and can be tilted 45 degrees right or left at any position on the table.

To do this:

1. Move dual-control handle SP-3611, away from machine until it engages acorn nut FJ-318.
2. Loosen nut and move fence to desired position.
3. Retighten acorn nut FJ-318.
4. To tilt fence, move dual-control handle in, towards machine, to engage nut FJ-313.
5. Loosen nut and tilt fence to desired angle right or left. When tilting fence to the right, stop block, NJ-231 must be moved out of the way.
6. Retighten nut FJ-313.

To adjust fence so that it is 90 degrees to table top:

1. Always bring fence bracket micrometer screw NJ-233 solidly against stop block NJ-231 when adjusting.

2. Loosen set screw NCS-177 and turn micrometer screw NJ-233 in or out against stop block NJ-231.
3. Check fence with a square.
4. If not square, continue adjustment until fence is 90° to table.

### LUBRICATION

The use of sealed bearings on the cutter head eliminates the need for lubrication of these parts. It is advisable to protect the finished surfaces of the fence

and tables from rusting, by using "Stop Rust" after each days use. Apply a drop or two of light machine oil to the table ways and the sliding parts of the fence so that these parts will operate freely.

### CUTTER HEAD MAINTENANCE

After considerable use, the knives will become dull and it will not be possible to do accurate work. Unless badly damaged by running into metal or other hard material, they may be sharpened as follows:

#### Jointing Knives

Knives may also be sharpened and brought to a true cutting circle by "jointing" their edges while the cutter head is revolving. To do this, place the carborundum stone on the rear table as shown in Fig. 7.

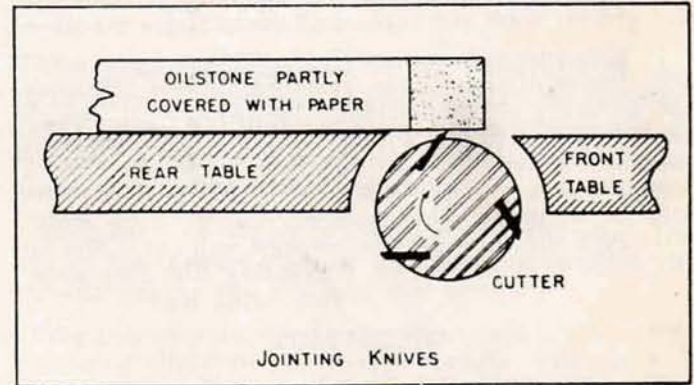


Fig. 7.

Be sure that the rear table is at the highest point of the cutting circle. Start the machine and move the stone forward until it projects over the knives; then move it across the table so that the knives are jointed their entire length. Keep the stone flat on the table. If the stone does not touch the knives at all points, lower the rear table one or two thousandths of an inch and repeat. When this operation is carefully done, the knives will cut very smoothly.

#### SETTING KNIVES

To reset the knives in a cutterhead:

1. Place a knife in its groove so that the rear edge of the bevel is  $\frac{1}{16}$ " from the surface of the cutterhead.
2. Slip lock-bar into place and tighten lock screws lightly.
3. Place a knife setting gauge, made of a piece of hardwood, approximately 12" long jointed straight on one edge, on the outfeed table.
4. Rotate head backwards by hand and adjust blade until it just touches the gauge.
5. Using gauge check, blade at each end so that it is parallel to table top and tighten the screws.
6. Insert the other two knives and repeat above instructions.

#### Cutter Head Repairs

When the knives cannot be properly sharpened by the methods described above, they must be ground to a new bevel edge. In such case, or when bearings need

replacement, remove the entire cutter head with bearings and housings from the base and return it to the factory. Back out the fillister head screws SP-634 from the bearing housings J-32 and J-33, inside the base, to release the cutter head assembly.

When installing the cutter head in the jointer, be sure to clean the curved seats of the base and tighten the SP-634 screws firmly into the bearing housings.

### MAINTENANCE

Gum and Pitch which collects on the blades causes excessive friction as the work continues, resulting in over heating the blades, less efficient cutting, and consequently loss of blade life. Use "Delta Gum and Rust Remover" to wipe this off the blades.

When these blades become dull enough so that it is noticeable when cutting, they should be resharpened. A sharp blade works easier and results in longer blade life. The penalty paid for a dull blade is less blade life and greater wear and tear on all parts of the machine.

In time rust will appear on the table and fence and other parts of the jointer, resulting in less efficiency and accuracy of the machine. Use "Stop Rust" which can be applied to prevent rust formation. If, however, rust has already formed on these parts use "Delta Rust Remover" which will restore the machine to its original accuracy when applied. Using "Stop Rust" after each time you use the machine will put a film on the parts it is applied to, preventing rust formation.

### OPERATION

The following directions will give the beginner a start on jointer operations. Use scrap pieces of lumber to check settings and to get the feel of the operations before attempting regular work.

#### Jointing an Edge

This is the most common operation for the jointer. Set the guide fence square with the table. Depth of cut should be the minimum required to obtain a straight edge. Hold the best face of the piece firmly against the fence throughout the feed.

#### Use of Hands While Feeding

At the start of the cut, the left hand holds the work firmly against the front table and fence, while the right hand pushes the work toward the knives. After the cut is under way, the new surface rests firmly on the rear table as shown in Fig. 5. The left hand should press down on this part, at the same time maintaining flat contact with the fence. The right hand presses the work forward throughout, protecting the operator against kick-back from the knives.

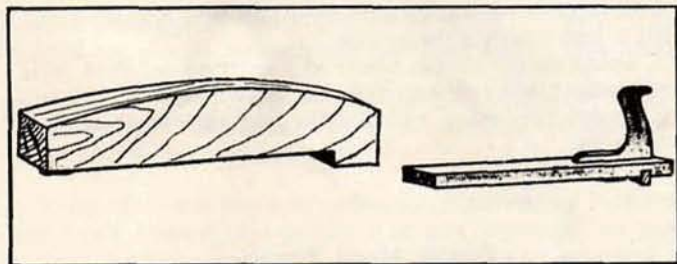


Fig. 8. Push Blocks.

#### Jointing Warped Pieces

If the wood to be jointed is dished or warped, take light cuts until the surface is flat. Avoid forcing such material down against the table; excessive pressure will spring it while passing the knives, and it will spring back and remain curved after the cut is completed.

#### Jointing Short or Thin Work

When jointing short or thin pieces, use a push block to eliminate all danger to the hands. Two types are shown in Fig. 8. They are easily made from scrap material.

#### Direction of Grain

Avoid feeding work into the jointer against the grain as shown in Fig. 9; the result will be chipped and splintered edges. Feed with the grain as in Fig. 10 to obtain a smooth surface.

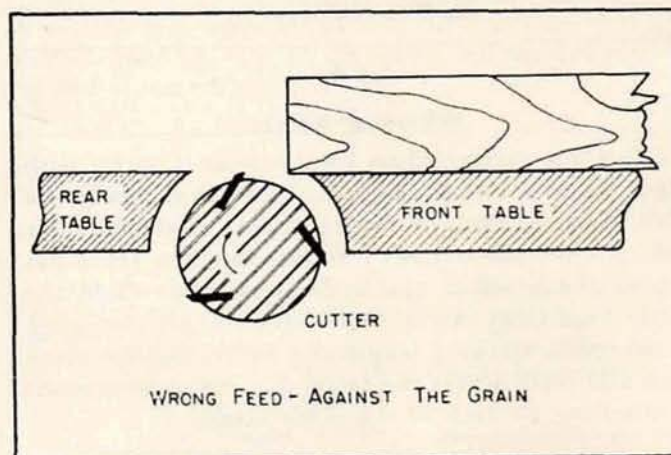


Fig. 9.

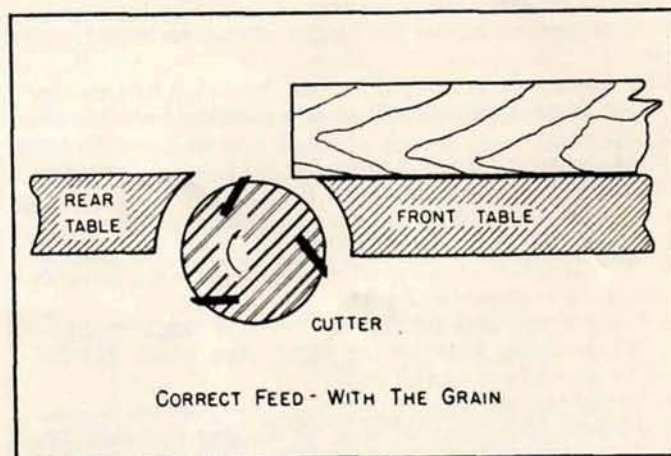


Fig. 10.

#### Rabbeting

The arm of the front table and ledge of the rear table provide for cutting rabbets up to  $\frac{1}{4}$  inch deep and 4 inches wide. The operation is illustrated in Fig. 11. The knife guard must be removed. Set the fence to control the width of rabbet, measuring from the end of the knives to the face of the fence. Lower the front table

to determine the depth of cut. Feed slowly when making a deep cut, to avoid splitting the wood. For wide cuts, make two or more passes at increasing depths. Use a push block when rabbeting the end of narrow stock.



Fig. 11. Cutting a Rabbet.

### Beveling

To cut a bevel, lock the fence at the required angle and run the work across the knives while keeping it firmly against the fence and tables. Several passes may be necessary to arrive at the desired result.

When the angle is small, there is little difference whether the fence is tilted to the right or left. However, at greater angles, approaching 45 degrees, it is increasingly difficult to hold the work properly when the fence is tilted to the right. The advantage of the double-tilting fence is appreciated under such conditions. When tilted to the left, the fence forms a V-shape with the tables, and the work is easily pressed into the pocket while passing it across the knives. If the bevel is laid out on the piece in such direction that this involves cutting against the grain, it will be better to tilt the fence to the right.

### Taper Cuts

One of the most useful jointer operations is cutting an edge to a taper. The method can be used on a wide variety of work. Tapered legs of furniture are a common example.

Instead of laying the piece on the front table, lower the forward end of the work onto the rear table. Do

this very carefully, as the piece will span the knives, and they will take a "bite" from the work, with a tendency to kick back unless the piece is firmly held. Now push the work forward as in ordinary jointing. The effect is to plane off all the stock in front of the knives, to increasing depth, leaving a tapered surface.

The ridge left by the knives when starting the taper may be removed by taking a very light cut according to the regular method for jointing, with the front table raised to its usual position.

Practice is required in this operation, and the beginner is advised to make trial cuts on waste material. Taper cuts over part of the length and a number of other special operations can easily be done by the experienced craftsman.

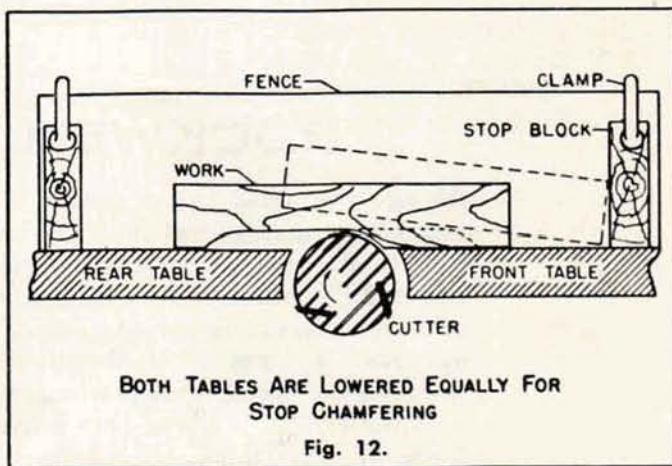
### Stop Chamfering

Figure 12 shows the cutting of a stop chamfer, an operation for which the rear table must be lowered from its usual position. The tables must be set to the same level. Depth of chamfer is determined by the amount the tables are lowered.

The stop block clamped to the front end of the fence prevents kick-back. Locate it to start the chamfer at the right place, and use a similar stop block at the rear end of the fence to control length of cut. These settings should be made before the machine is started.

Roughness caused by cutting against the grain at the end of the chamfer may be smoothed by sanding, or the cut may be run half way and reversed.

The true stop chamfer is a bevel cut, and is made with the fence tilted to the required angle. The method is, however, as shown in Fig. 12 for a square cut.



**\*IMPORTANT:** Base, front and rear tables cannot be supplied separately, as the re-assembled machine would not be accurate. For true alignment, we finish-grind our jointer tables after assembly on the base. When a new table or base is required, ship the machine, less fence and knife guard, to the factory for rebuilding. The cost will be the list price for the new part plus a fixed charge for assembling and grinding the tables.

**\*\*NOTE — Cutter Head Repairs:** Special tools are required to remove and replace ball bearings on the cutter head. When the bearings or cutter head need replacement, order a complete new cutter head assembly #37-806, or return the old one to us for repairing for which there is nominal charge covering repair work plus a small labor charge per bearing for installing.

**Knife Sharpening Service:** Our charge for re-grinding and setting knives will be a nominal net charge per cutter head, F.O.B. factory.

Be sure to send the complete cutter head assembly with bearings and housings, less pulley, by prepaid express or parcel post insured.

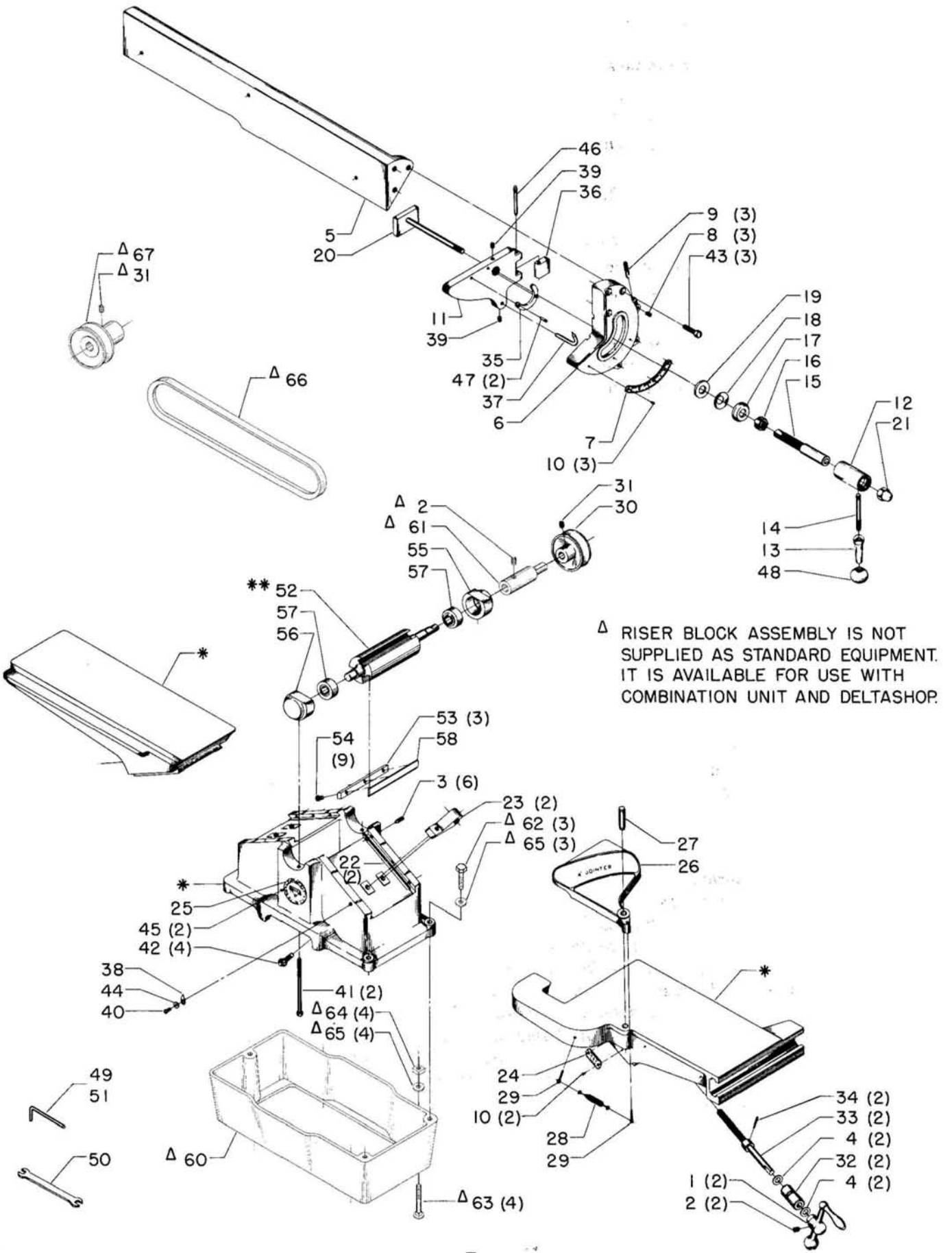
Cutterheads may be returned to:  
 ROCKWELL MANUFACTURING COMPANY  
 Delta Power Tool Division  
 Tupelo, Mississippi  
 Attention: Service Department

## SAFETY RULES

1. Always keep your hands on top of the work.
2. Always hold the work firmly on the table or against the fence.
3. Always turn the concave side of stock toward the table and cut with the grain, not against it.
4. Never run a piece of stock shorter than 12 inches across the jointer.
5. Do not operate the jointer unless the guard is in place and working.
6. Do not use the jointer when the knives are dull.
7. Never attempt to run a piece of wood across the jointer until the machine is running at full speed.
8. Set the fence at right angles to the table. Test with a square.
9. If the stock is not held down on the rear table after passing over the cutter head, the machine will not produce a true surface.

## ROCKWELL GUARANTEE

*Rockwell is proud of the quality of the power tools which it sells. The component parts of our tools are inspected at various stages of production, and each finished tool is subjected to a final inspection before it is placed in its specially designed carton to await shipment. Because of our confidence in our engineered quality, we agree to repair or replace any part or parts of Rockwell Power Tools or Rockwell Power Tool Accessories which examination proves to be defective in workmanship or material. In order to take advantage of this guarantee, the complete Delta or other Rockwell machinery part or accessory must be returned prepaid to the appropriate Factory, Rockwell Service Center, or Authorized Service Station for our examination. This guarantee, of course, does not include repair or replacement required because of misuse, abuse, or normal wear and tear. Repairs made by other than our Factory, Rockwell Service Center, or Authorized Service Station, relieves Rockwell of further liability under this guarantee. This guarantee is made expressly in place of all other guarantees expressed or implied with respect to fitness, merchantability, or quality.*



# Replacement Parts

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
	*	Base	35	NJ-229	Segment Key
	*	Front Table	36	NJ-231	Stop Link
	*	Rear Table	37	NJ-241	Pointer Rod
1	BM-4-S	Ball Crank, Incl;	38	SBS-46	Pointer
2	SP-206	5/16-18 x 5/16" Soc. Hd. Set Scr.	39	SP-253	1/4-28 x 1/4" Soc. Hd. Set Scr.
3	DDL-250	1/4-28 x 19/32" Hd'less Set Scr.	40	SP-561	#10-32 x 3/8" Rd. Hd. Mach. Scr.
4	DP-41	7/16" Fiber Washer	41	SP-634	1/4-20 x 3 3/4" Hex. Hd. Cap Scr.
5	FJ-304-R	Fence	42	SP-663	5/16-24 x 3/4" Hex. Hd. Cap Scr.
6	FJ-305-M	Fence Segment, Incl;	43	SP-707	5/16-18 x 1" Fill. Hd. Mach. Scr.
7	FJ-319	Tilt Scale	44	SP-1609	13/64" Washer
8	NCS-177	1/4-28 x 1/4" Hd'less Set Scr.	29	SP-2101	3/32 x 5/8" Cotter Pin
9	NJ-233	Stop Scr.	10	SP-2250	#4 x 3/16" Drive Scr.
10	SP-2250	#4 x 3/16" Drive Scr.	45	SP-2252	#2 x 3/16" Drive Scr.
11	FJ-306	Cross Slide Plate	46	SP-2705	7/32 x 1 7/8" Roll Pin
12	FJ-308	Fence Handle Body	47	SP-2707	5/32 x 1/2" Roll Pin
13	FJ-309	Spacer	48	SP-3611	Handle Ball
14	FJ-310	Stud	49	Cat. #194	5/32" Hex. Wrench
15	FJ-311	Clamp Sleeve	50	Cat. #1522	5/16" Open End Wrench
16	FJ-313	Clamp Nut	51	Cat. #1534	1/8" Hex. Wrench
17	FJ-314	Clamp Collar	52	** Cat. #37-806	Cutterhead, Incl;
18	FJ-315	Spring Washer	53	J-22	Knife Lock Bar
19	FJ-316	Washer	54	J-23	Spec. 1/4-24 x 1/4" Set Scr.
20	FJ-317-S	Clamp Plate with Bolt	55	J-32	Bearing Retainer for Pulley Side
21	FJ-318	Cap Nut	56	J-33	Bearing Retainer for Left Side
22	FJ-321	Gib	57	SP-5336	Bearing
23	FJ-322	Table Adj. Nut	58	Cat. #37-802	Set of 3 Jointer Knives
24	FJ-325	Scale	60	Δ FJ-334	Raising Block
25	HL-632	Name Plate	61	Δ FJ-335-S	Shaft Extension, Incl;
26	J-13-S	Knife Guard, Incl;	2	Δ SP-206	5/16-18 x 5/16" Soc. Hd. Set Scr.
27	J-14	Pin	62	Δ SP-602	5/16-18 x 1 1/4" Hex. Hd. Cap Scr.
28	J-15	Spring	63	Δ SP-854	5/16-18 x 1 3/4" Carriage Bolt
29	SP-2101	3/32 x 5/8" Cotter Pin	64	Δ SP-1303	5/16"-18 Sq. Nut
30	J-17-S	Cutterhead Pulley, Incl;	65	Δ SP-1604	5/16" Washer
31	SP-201	5/16-18 x 5/16" Soc. Hd. Set Scr.		Δ Cat. #49-186	Belt and Pulley Group, Incl;
32	NJ-208	Adj. Scr. Sleeve	66	Δ Cat. #410	V-Belt
33	NJ-215-S	Adj. Scr. with Collar, Incl;	67	Δ Cat. #49-182	Pulley, Incl;
34	SP-2709	1/8 x 3/4" Groove Pin	31	Δ SP-201	5/16-18 x 5/16" Soc. Hd. Set Scr.