DELTA® ROCKWELL Power Tools

PM-1697
Revised: 12-15-55

37-B: Jointer Instruction Manual

U. S. Patent No. 1,790,288; 1,967,791; 1,975,562; Des. 156,923

No. 37-110 HOMECRAFT 4" JOINTER
Operating and Maintenance Instructions

The Homecraft 4" Jointer is an accurate machine, ideal for the home workshop. Its maximum depth of cut is ¼-inch.

Each jointer is inspected and tested before shipment. These machines will give excellent results if properly used and maintained. The adjustments for various operations are described below; read and follow the instructions carefully.

Our illustrated book No. 4701-W, "Getting the Most out of Your Circular Saw and Jointer," contains additional information about all jointer operations.

Refer to Fig. 16 and Table 1 to identify the parts mentioned in the following instructions.

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 on this Jointer is finish ground to increase accuracy, and is heavily ribbed for rigidity and to prevent warping.

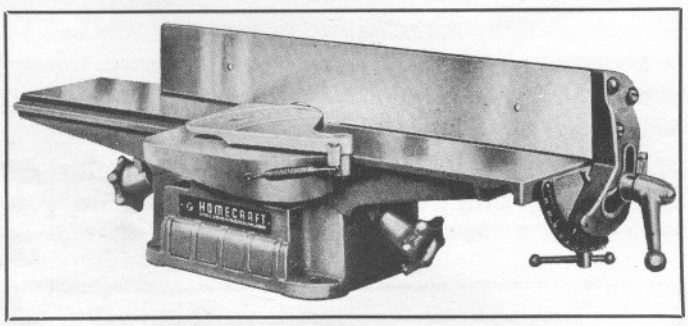


Fig. 1. Homecraft 4" Jointer

The fence is 20 inches long by 3 inches high and can be easily locked in any position across the table. This allows tilting 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 ⅓ H. P., 115 volt, 60 cycle, 1725 R. P. M. bronze bearing motor with ½" shaft for medium duty work.

For heavy duty work use a No. 62-413, ⅓ H. P. 1725 R. P. M. capacitor motor, 60 cycle, single phase, 115 volts, alternating current only.

Any other constant speed motor of ¼ hp or greater capacity may be used. 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 motor by using the 6½-inch motor pulley No. 5650 in conjunction with the 2¾-inch cutter head pulley J-17-S which is furnished on the jointer.

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 2¾-inch drive pulley at 4000 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. 453 V-Belt, offered for use with this jointer, has an outside circumference of 47¼ 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. 37-110. It consists of two units, the body and the fence, bolted to a wooden skid. 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.

Figure 8 shows a set-up of the jointer with the motor placed to the right of the belt. A bench top 18 inches wide by 30 inches long is sufficient. Cut a hole under the jointer, so the chips will fall into a receptacle such as the paper bag shown suspended below the bench. In this arrangement the jointer may be set directly on the bench, omitting the shim blocks. The customer

can easily build such a bench, using our No. 344 steel bench legs.

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. The 2-inch blocks shown in Fig. 8 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 5/16-inch carriage bolts of proper length for fastening the machine and motor.

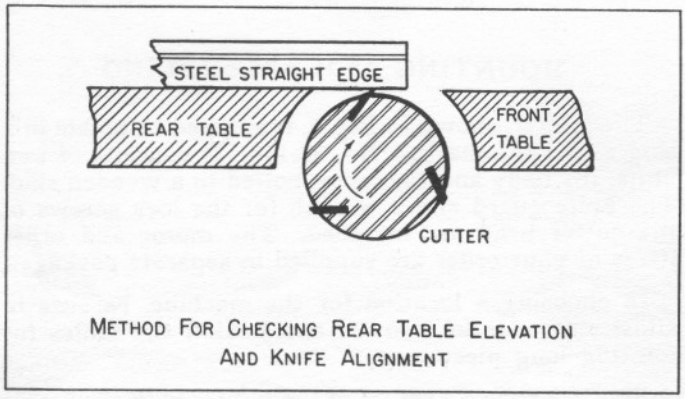
Mount the fence on the jointer by slipping the cross slide bracket HJ-6 into the slot under the front table HJ-2. Install the knife guard J-13-S on the front table, connecting the coil spring as shown in Fig. 1. The machine is now ready for adjustment and operation.

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 HJ-3 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.

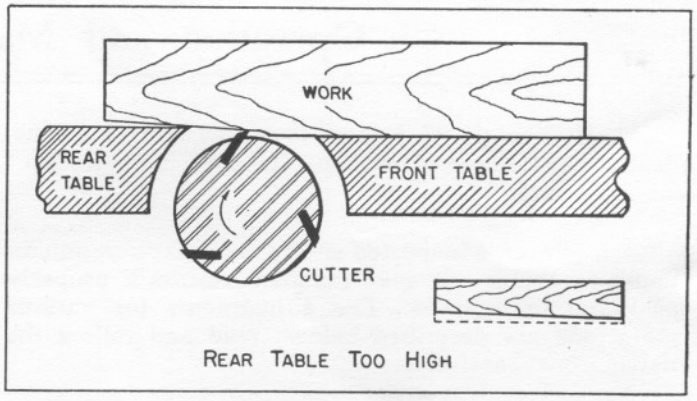


METHOD FOR CHECKING REAR TABLE ELEVATION AND KNIFE ALIGNMENT

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.

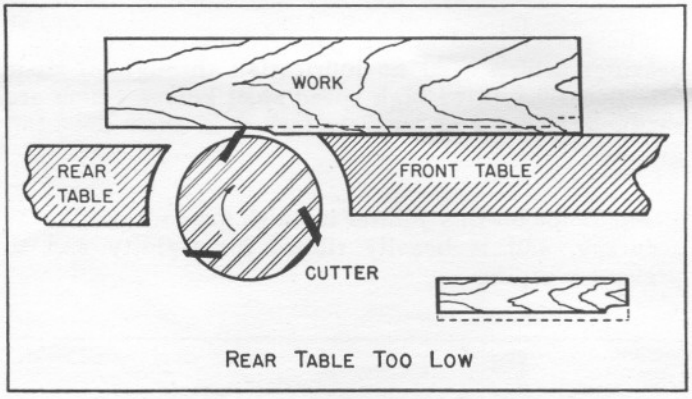
Raise or lower the rear table as required, by turning the hand knob HJ-12. After it has been set at the correct height, it should not be changed, except for special operations and after sharpening knives.



REAR TABLE TOO HIGH

Fig. 3.

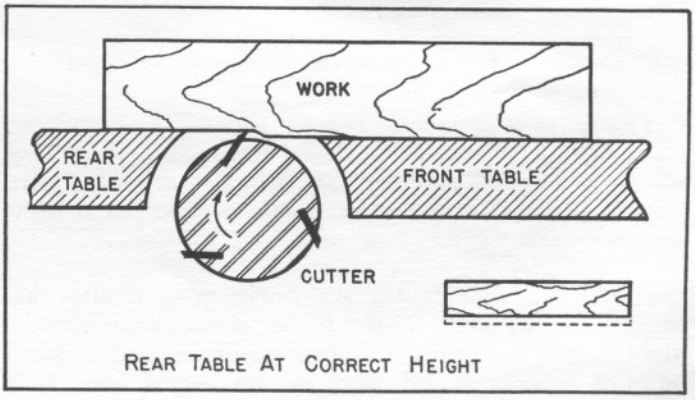
If the rear table is too high, the result will be as shown in Fig. 3; the finished surface will be curved. When the rear table is too low, the condition will be as illustrated in Fig. 4; the work will be gouged at the end of the cut.



REAR TABLE TOO LOW

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.



REAR TABLE AT CORRECT HEIGHT

Fig. 5.

Depth of Cut

The amount of material removed by a single cut can be any thickness from a very thin shaving to ¼ inch. Adjust for depth of cut by raising or lowering the front table, using the hand knob HJ-12 on the front of the base.

Fence Adjustments

The fence may be set at any position within the width of the table. Lock it by turning the bolt J-36-S into the cross slide bracket HJ-6 from below.

To tilt the fence, loosen the segment HJ-5 by turning the handle SR-217. When tilting to the left, flip the stop link J-19 out of the way to pass the stop screw SP-108. Set the fence to the desired angle on the tilt scale and lock it by means of the handle SR-217. This handle is adjustable on the serrated nut HJ-9 so that it can be set to the most convenient position.

The face of the fence should stand exactly square with the tables when the stop SP-108 is against the stop link J-19. Check this with a mechanics' square. Joint two adjacent faces of a piece of work, being careful to keep the first face firmly against the fence while the second is being jointed. Check the angle between the finished faces. If not exactly at right angles, make the correction by turning the stop screw against the link, or backing away, as required. When the setting is correct, lock the stop screw by means of its hexagon nut SP-1029. Set the pointer L-24 to zero on the tilt scale. The scale will then indicate correctly any angle to which the fence is tilted, and the fence will return to the square position when the stop screw is brought into contact with the stop link.

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.

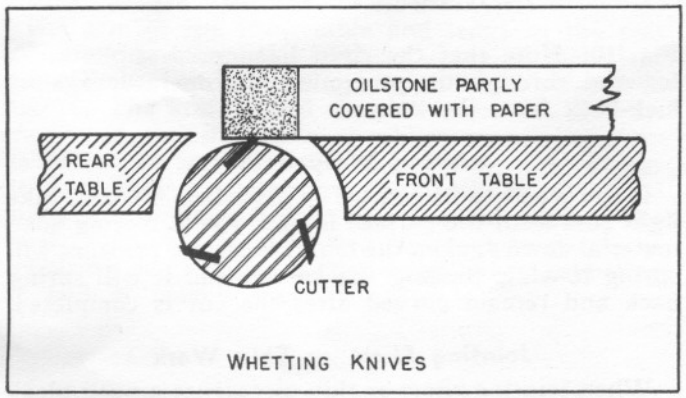


Fig. 6.

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:

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.

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.

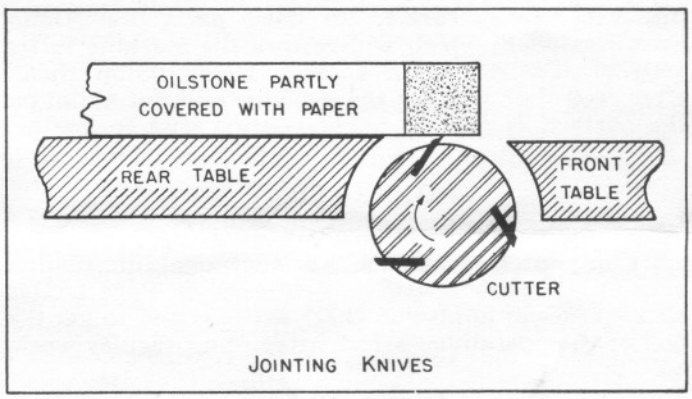


Fig. 7.

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

If the knives have been removed from the cutter head, care must be used in re-setting them. Each knife should be placed in its groove so that the rear edge of the bevel projects 1/16 inch beyond the surface of the cutter head. Slip the knife lock bars J-22 into place and tighten the lock screws J-23 lightly. Adjust the knives for true cutting circle, using the straight edge as described under "Rear Table and Knife Adjustment." Check all lock screws to be sure that they are tight. Joint the knives lightly before running any work.

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-701 from the bearing housings J-32 and J-33, inside the base, to release the cutter head assembly. See the footnote of Table 1 for repair service prices.

When installing the cutter head in the jointer, be sure to clean the curved seats of the base and tighten the SP-701 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. For additional information consult a handbook such as mentioned on Page 1. 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. The operation is illustrated in Fig. 8 to 10.

Use of Hands While Feeding

The pictures of the edge jointing operation show the manner in which the hands should be used to guide the piece for accurate work, with due regard for the safety of the operator. The knife guard was removed for these pictures, to better show the action of the cutter head. However, we urge the operator to keep the guard in its regular position whenever possible, for his own protection.

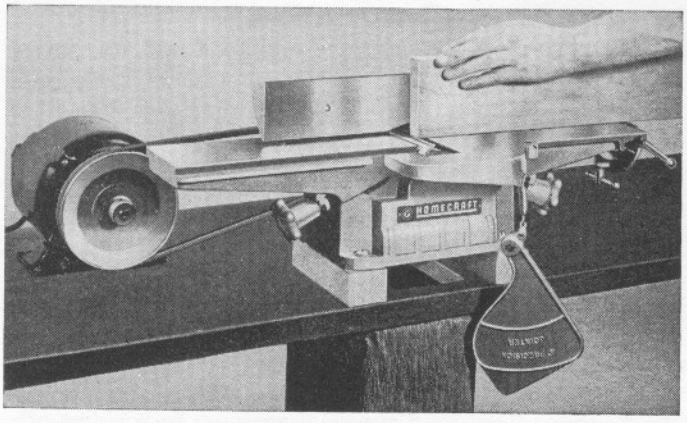


Fig. 8. Jointing an Edge—Start of Cut.

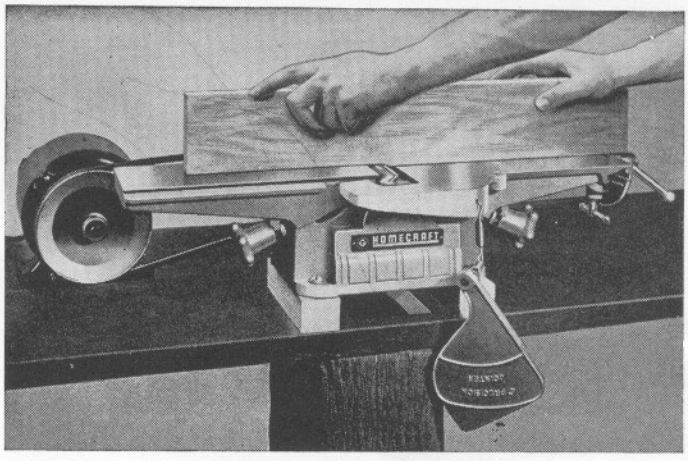


Fig. 9. Jointing an Edge—Middle of Cut.

At the start of the cut, the left hand holds the work firmly against the front table and fence, while the right hand (not shown in Fig. 8) 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. 9. The left hand should press down on this part, at the same time maintaining flat contact with the fence. At the end of the operation the position is as in Fig. 10. Note that the right hand presses the work forward throughout, protecting the operator against kick-back from the knives.

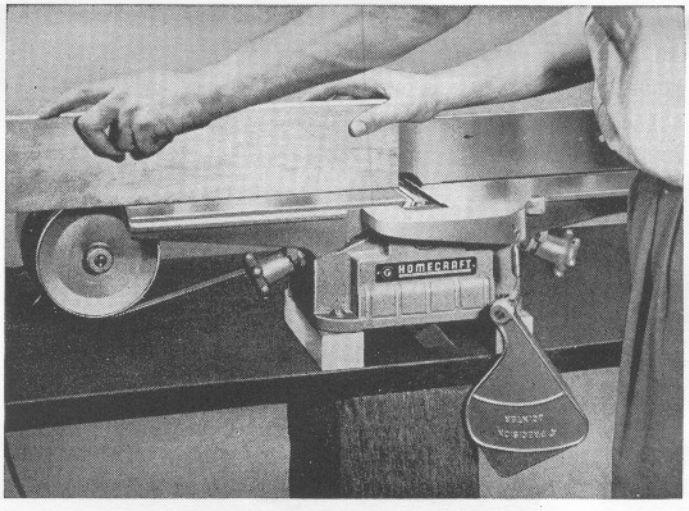


Fig. 10. Jointing an Edge—End of Cut.

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

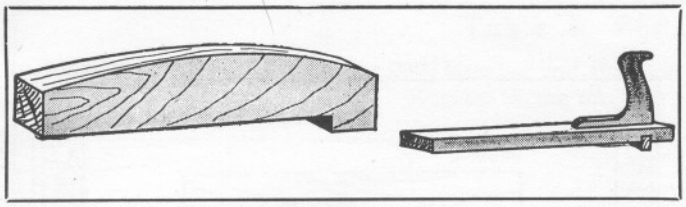


Fig. 11. Push Blocks.

shown in Fig. 11. They are easily made from scrap material.

Direction of Grain

Avoid feeding work into the jointer against the grain as shown in Fig. 12; the result will be chipped and splintered edges. Feed with the grain as in Fig. 13. to obtain a smooth surface.

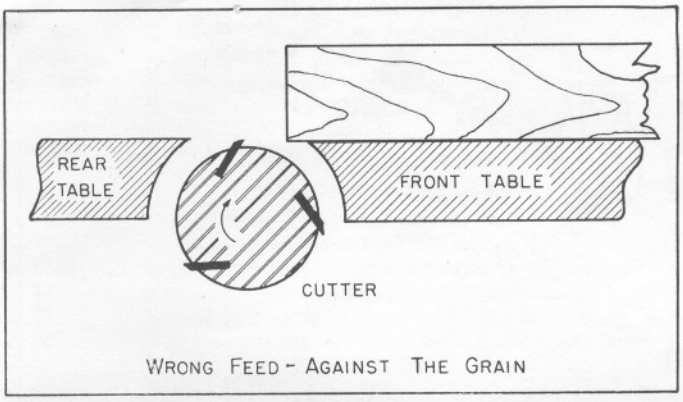


Fig. 12.

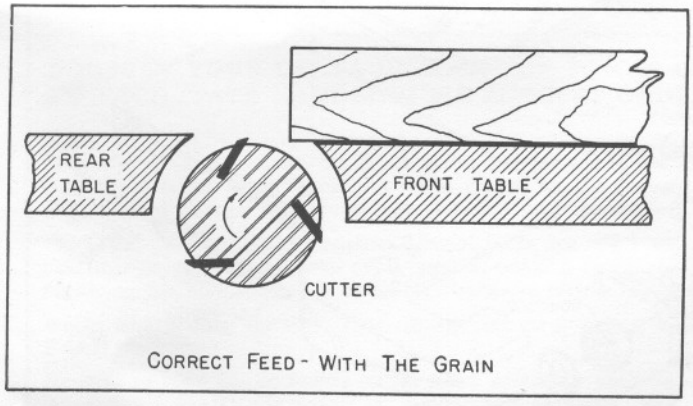


Fig. 13.

Rabbeting

The arm of the front table and ledge of the rear table provide for cutting rabbets up to ¼ inch deep and 4 inches wide. The operation is illustrated in Fig. 14. 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.

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. Consult the handbook for directions which will greatly increase your skill in obtaining a wide variety of results.

Stop Chamfering

Figure 15 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

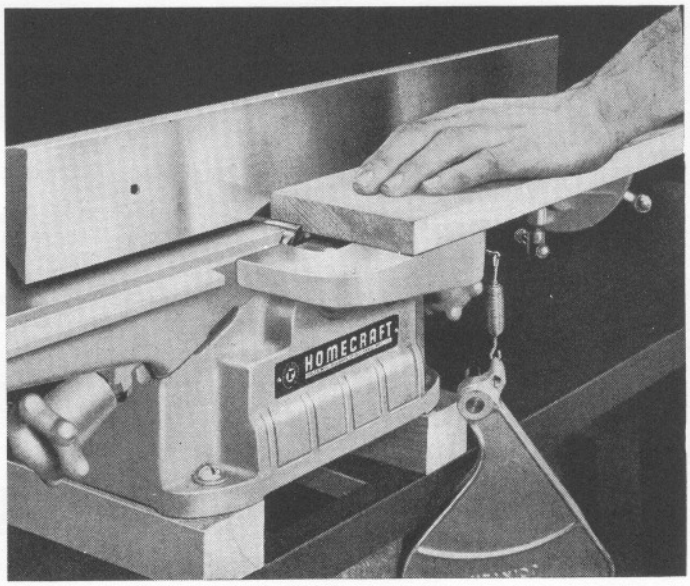


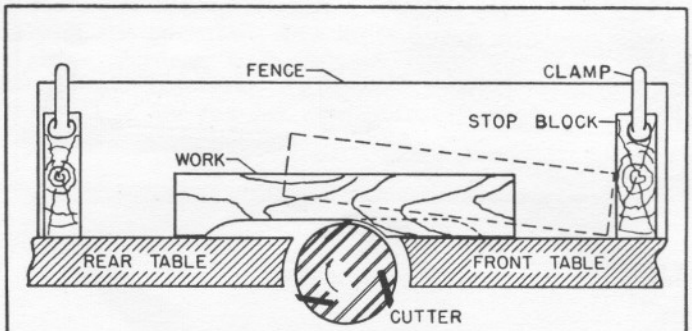
Fig. 14. Cutting a Rabbet

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. 15 for a square cut.



BOTH TABLES ARE LOWERED EQUALLY FOR STOP CHAMFERING

Fig. 15.

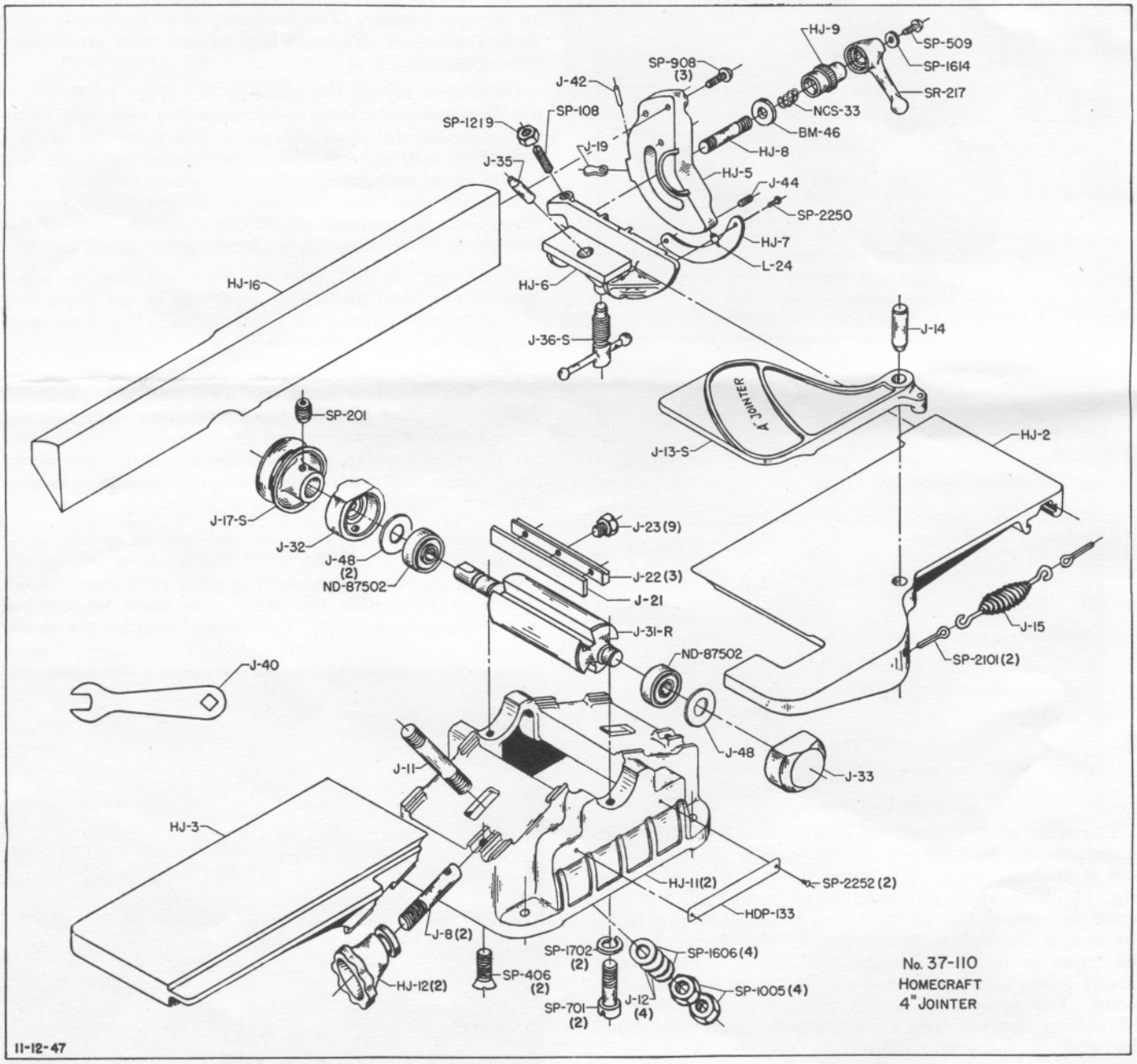


Fig. 16.

Table 1. REPLACEMENT PARTS

IMPORTANT: Give both the Part Number and the Description of each item when ordering from this list; also the Serial Number of the machine on which the parts are to be used.

Part No.	Description	No. Req.
	BODY	
*HJ-2	Front Table	1
*HJ-3	Rear Table	1
*HJ-11	Base	1
HJ-12	Hand Knob, 2¼" Diameter, ½"-13 Thread	2
HDP-133	Name Plate, 13/16 x 4¾", Homecraft	1
J-8	Stud, ½-13 x 2¾", Threaded One End	2
J-11	Stud, ⅜-16 x 2¼", Threaded Both Ends	2
J-12	Special 13/32" Spring Washer	4
J-13-S	Knife Guard, with Pivot Pin & Return Spring	1
J-14	Steel Pin, 7/16 x 1 7/16", Chamfered Both Ends	1
J-15	Coil Spring, 7/16" Diameter, with Hooks	1
SP-406	¼-20 x ¾" Flat Head Machine Screw	2
SP-1005	⅜"-16 Hexagon Jam Nut	4
SP-1606	7/16" Steel Washer	4
SP-2101	3/32 x ⅝" Cotter Pin	2
SP-2252	#2 x 3/16" Drive Screw	4
SP-5000	Serial No. Plate	1
	****CUTTER HEAD**	
J-31-R	Cutter Head, Assembled with Knives, Ball Bearings and Bearing Housings	1
J-17-S	2¾" Cutter Head Pulley, with Set Screw	1
J-22	Knife Lock Bar, 7/16 x 3⅞", ¼" Thick	3
J-23	Special ¼-28 x ¼" Hexagon Hd. Set Screw	9
J-32	Bearing Housing for Pulley Side	1
J-33	Bearing Housing for Left Side	1
J-48	Special ⅝" Steel Washer	2
SP-201	5/16-18 x 5/16" Hexagon Socket Set Screw	1
SP-701	¼-20 x ¾" Fillister Head Machine Screw	2
SP-1702	¼" Split Lockwasher	2
No. 37-802	Knife Blade, 19/32 x 4", J-21, Set of 3	1

Part No.	Description	No. Req.
	FENCE	
HJ-16	Fence Body	1
HJ-16-S	Fence, Complete, Assembled	1
HJ-5	Fence Segment, Casting Only	1
HJ-5-S	Fence Segment, with Stop Link and Pointer	1
HJ-6	Cross Slide Bracket	1
HJ-6-S	Cross Slide Bracket, w/Stop Screw & Tilt Scale	1
HJ-7	Tilt Angle Scale, ½ x 3⅜"	1
HJ-8	Stud, ⅜-16 x 1¾", Threaded Both Ends	1
HJ-9	⅜"-16 Serrated Nut, ¼"-20 Tapped Head	1
BM-46	Special 25/64" Steel Washer	1
J-19	Stop Link, 1⅛" Long, 13/64" Hole	1
J-35	Steel Pin, 7/16 x 1 17/32", Cone Point	1
J-36-S	Lock Bolt, ½-13 x 1⅛", w/Ball-End Handle	1
J-42	Steel Pin, 3/16 x ⅞", Cone Point	1
J-44	Special #8-32 x 5/16" Headless Set Screw	1
L-24	Center Point, ½" Long, 3/16" Straight Body	1
NCS-33	Coil Spring, 37/64" Diameter, ½" Free Length	1
SR-217	Ball-End Adjustable Clamp Handle	1
SP-108	¼-20 x ¾" Headless Set Screw	1
SP-908	5/16-18 x 1" Round Head Stove Bolt	3
SP-509	¼-20 x ½" Round Head Machine Screw	1
SP-1219	¼"-20 Hexagon Nut	1
SP-1614	Steel Washer	1
SP-2250	#4 x 3/16" Drive Screw	2
	MISCELLANEOUS	
J-40	5/16" Open End Stamped Steel Wrench	1
SP-2	5/32" Hexagon Wrench for Socket Screws	1
NJ-294	Double End 5/16" Open Wrench, Forged Steel	1
No. 344	Bench Leg, Pressed Steel, Welded, 31" High	2
No. 453	V-Belt, 47¼" Outside Circumference	1
No. 5650	6½" Motor Pulley, with Set Screw (Specify ½, ⅝ or ¾" Bore)	1
SP-201	5/16-18 x 5/16" Hexagon Socket Set Screw	1

CONSULT YOUR DELTA DEALER FOR PRICES OF REPLACEMENT PARTS, ACCESSORIES AND TOOLS TO FACILITATE HANDLING WE SUGGEST ORDERING ALL PARTS THROUGH YOUR DELTA DEALER.

*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 J-31-R, 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 for $15.00, for repair or sharpening service.

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Rockwell MANUFACTURING COMPANY

DELTA POWER TOOL DIVISION PITTSBURGH 8, PENNSYLVANIA

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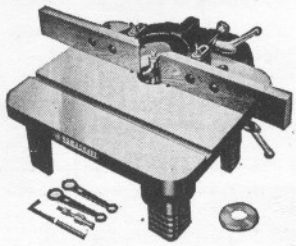

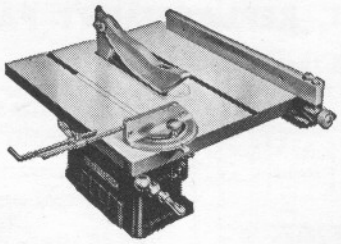

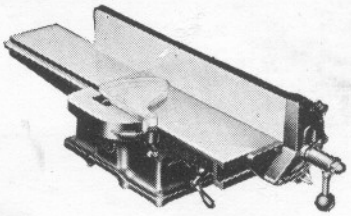

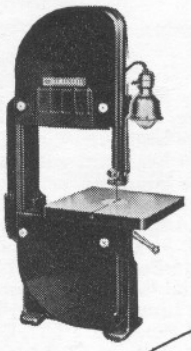

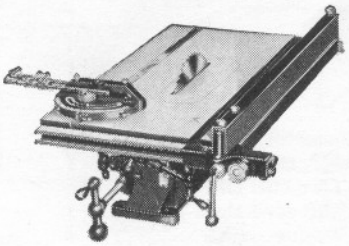

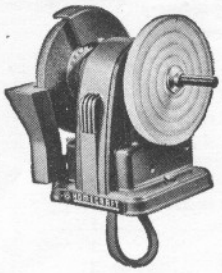

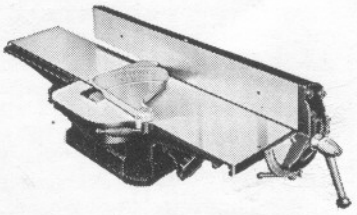

10" BAND SAW

4" JOINTERS

8" CIRCULAR SAWS

SHAPER

DELTAGRAM

BUFFER

DRILL PRESS

GRINDER

ACCESSORIES

MOTORS

BOOKS AND MANUALS

PLANS

PLAN SHEETS

11" LATHE

FLEXIBLE SHAFT TOOLS

V-BELT PULLEYS

10" LATHE

COMBINATION SAW-JOINTERS

16" SCROLL SAW

HOMECRAFT Power Tools for the HOME WORKSHOP