

## **Cluster #4 – Jointer**

### **Primary Use**

The primary use of the Woodtek 10" Jointer is for planing the face and edges of a workpiece to create straight and square surfaces. It may be used before using the table saw to remove warp when a true edge is needed.

### **Important Parts**

#### *Front In-feed Table*

The in-feed table is where you initially place your wood. The height of this surface below the cutting head determines the amount of wood that will be removed.

#### *Height Adjustment Wheel*

The height adjustment wheel sets the in-feed table to your desired depth of cut. Turn the height adjustment wheel located below the in-feed table to raise or lower the in-feed table.

#### *Fence*

The fence is the guide that the flat surface of your wood is placed against for edge jointing. For most operations the fence should be at an exact right angle to the in-feed table.

#### *Rear Out-feed Table*

The out-feed table is set to the same height as the cutters, and will be the surface that your wood is pushed towards.

#### *Blade Guard*

The blade guard covers the spiral cutters and should never be moved except by the workpiece itself during a cut.

#### *Depth Scale*

The depth scale located below the in-feed table indicates the depth of the cut you will take.

#### *On/Off Panel*

Press the green button to start the Jointer, push in the red button to shut it off. A red light on the panel indicates the machine is operating.

### **Adjustment of the tool**

Use a square or digital gauge to ensure the fence is at 90 degrees to the in-feed table and lock it into place using the angle lock handle. Set the front in-feed table to the correct depth of cut. Do not cut more than 1/8" in one pass. Hard woods require less removal on each pass. Set the fence to accommodate the planned cut on the workpiece.

### **Demonstrate the basic operation of jointing an edge**

- At the start of the cut, the left hand holds the work firmly against the in-feed table and fence, while the right hand pushes the work toward the cutters. After the cut is underway, the new surface rests firmly on the out-feed table.
- The left hand should then be moved to the work on the out-feed table, at the same time maintaining flat contact with the fence.
- The right hand passes the work forward, and before the right hand reaches the cutterheads, it should be moved to the work over the out-feed table.  
**WARNING – Never pass hands directly over the cutterheads under pressure**
- Stand back of the cutterheads, with the feet well apart, the left foot nearest the cutterheads.
- Hold the board firmly on the in-feed table with both hands so that one side of it is against the fence. When all of the board has been jointed, continue pushing until both hands hold the board firmly down on the out-feed table.
- The depth of cut should be the minimum required to obtain a straight edge.

### **Direction of grain**

To make a smooth cut, note the direction of the grain on the side of the board. Always cut with the grain, never against the grain.

**CAUTION – DO NOT PERFORM EDGE JOINTING OPERATIONS ON MATERIAL SHORTER THAN 9", NARROWER THAN 1", OR LESS THAN 1/2" THICK.**

### **SAFETY**

- **Always wear eye protection.**
- Never joint end grain of a narrow workpiece (less than 9").

- Use push blocks for face jointing, especially when your workpiece is short and thin. • Do not hold your hands too near the cutters or on the ends of the workpiece as you are passing it over the cutter heads.
- The maximum depth of the cut should be 1/8". The average cut should be 1/16" or less.
- Examine the workpiece for knots, splits, or nails before running it over the jointer. ? Roll up sleeves and don't wear loose clothing or loose jewelry. Secure long hair.
- Ensure the work area is clean of scrap.

## **SURFACING OPERATIONS CAUTION – DO NOT PERFORM SURFACING OPERATIONS ON MATERIAL SHORTER**

**THAN 9", NARROWER THAN 3/4", WIDER THAN 9 1/2", OR LESS THAN ?" THICK.**

In general the Planer is a better tool to use to reduce thickness. Use two push blocks for surface jointing, with each hand holding a push block.

### **Give hands on experience**

### **JOINTER, MEMBER DEMONSTRATION**

Have each member perform the following, with 3/4"x 8"x 16" pine board

- Set the depth of cut on the infeed table to 1/32".
- Check that the fence is set at 90° with a Tri Square.
- Following the procedure in **Demonstrate the basic operations**, plane the edge 1/32" (end grain) and check for squareness with a Tri-Square.
- If it is not perfectly square, redo the cut.

## **Cluster #4 – Planer**

### **Primary Use**

The primary use of the Powermatic 20" Planer is to smooth stock and cut it to uniform thickness. It is not necessary to plane all wood, i.e. wood that is already surfaced on all four sides. The planer will not correct or straighten warped stock.

### **Important parts**

The most important parts of the Planer are:

*In-feed/out-feed (Work) Table*

The in-feed end of the table is where you place your stock to begin the cut. The outfeed portion of the table is where the stock is retrieved subsequent to the cut. The one-piece worktable is parallel to the cutterhead.

### *Depth of Cut Adjustment*

Raising or lowering the in-feed/out-feed table controls the depth of cut. To adjust the depth of the cut, turn the hand-wheel clockwise to raise the table, which planes off more wood, and counter-clockwise to lower the table, which planes off less wood. The recommended cut is 1/16". The maximum depth of cut is 1/8" or two turns of the hand-wheel. The minimum desired cut is .015".

### *Transmitting Rollers*

As the stock passes through the planer it contacts six rollers in this order: antikickback, in-feed, chipbreaker, cutterhead, pressure and outfeed.

### **Adjustment of the Cut**

Turn the hand-wheel to set the exact thickness of the wood, minus 1/16" for the first cut. Re-adjusting the handwheel and planing both sides of the stock can be made on subsequent cuts. A minimum of .015" is desired. If less cut is used, the indentation from the feed-roller may not be removed by the cutterhead. Another method to minimize roller indentations is to feed the wood on a slight diagonal angle.

### **Demonstrate the basic operation**

Explain that planing is performed before the wood is cut to final length. Also, the majority of planing is done at 24 fpm to maximize the life of the planer blades.

### **Safety**

- **Always wear eye protection.**
- Any glued up stock MUST cure at least 24 hours to avoid damage to the table and rollers due to the possibility of soft glue being deposited on machine parts.
- Never feed the work onto the out-feed end of the machine.
- When planing extra-long work pieces, make sure the material is supported at the in-feed and outfeed ends of the table.
- Never start the machine with the work piece in contact with the cutterhead.
- Ensure the work piece is free from nails, loose knots or other objects that could cause injury or damage to the blades.

- Do not perform planing operations on material shorter than 9", narrower than 3/4", or thinner than 3/16". Maximum depth of cut is 1/8".
- When planing short boards, never place your fingers on the edge or underside of the board at the infeed end of the table. As the in-feed roller engages the wood, the board is forced down against the infeed table with enough force to cause injury to the fingers.
- Never plane stock of varying thickness at the same time. I.e. all the wood should require the same cut. ? Roll sleeves above the elbow.
- Don't wear loose clothing or loose jewelry.
- Never clean the planer with the power "on" and never use your hands to clear sawdust. Use a brush to clean the machine.

### **Give Hands-On Experience MEMBER DEMONSTRATION**

Wood for Demonstration: ?" x 8" x 16" pine board. Put your safety glasses on.

1. Set the planer to the thickness of the piece of wood (? inch).
2. Turn on the exhaust system.
3. Start the Planer.
4. Set the feed at 31 fpm.
5. Place the wood flat on the in-feed table and push it forward towards the power rollers.
6. Retrieve your wood from the out-feed side of the table.
7. Set the planer to cut off 1/16 inch of wood.
8. Set the feed at 24 fpm.
9. Place the wood flat on the in-feed table and push it forward toward the power rollers.
10. Retrieve the wood from the out-feed side of the table.
11. Turn the planer/exhaust system off.