

Tranquill JS3 User's Guide

1 READ THIS FIRST

Woodworking involves some degree of risk, which is assumed by the user of the tool. Safety should always be the primary concern when using any power tools, including tools that this is used to set up. When using the JS3 to set up saws, make sure that the saw is **off and unplugged** to prevent inadvertent startup while setting the blade angle. All the same precautions should be followed when using the JS3 as when replacing a blade.

2 For Best Results

- Make sure lumber is square and parallel; all four faces will be used as reference faces, so improperly milled lumber will result in misaligned edges.
- Use a spacer block up against the rip fence to set the cut width; this prevents pieces from getting caught between the blade and the fence.
- Cut four **SHALLOW** grooves in the lumber prior to cutting staves or splayed staves – two on each face, symmetrically spaced from the edges. Rubber bands can be used for clamping, and will stay in place in the grooves, even on splayed staves!

3 Overview

The JS3 (Tranquill Jig for Splayed Staves and Segments) is a mechanical calculator that can be used to calculate the coupled bevel angle (blade

angle) and miter angle (fence angle) from vertical staves, splayed staves, and segments.

4 Part Nomenclature

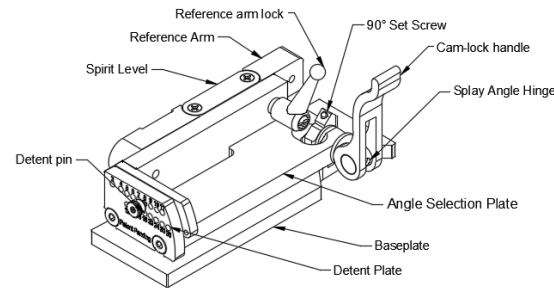


Figure 1 JS3 View and Part Names (Heel-on view)

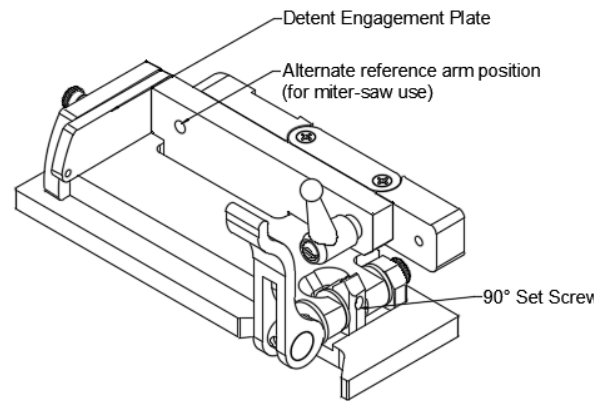


Figure 2 JS3 View and Part Names (Toe-on view)

5 Basic Setup

5.1 From the Box

When you receive the JS3, check the calibration of the 90° set-screw.

- 1.) Open the splay-angle hinge (between the base plate and the splay plate) to 90°. Use a square to ensure the angle is accurate

- 2.) From the toe-end of the device, use an allen key to adjust the set screw so that it comes in contact with the bearing surface on the splay plate

To make sure that the set screw maintains the 90° setting, use a removable thread-locker liquid (such as Loctite 242 Medium Strength, Blue) when inserting the set-screw. Removable thread-locker is recommended to allow for future adjustments, if necessary.

6 Cutting Staves and Segments

6.1 Setup and Cutting Splayed Staves

1. Insert the detent pin through the hole in the detent plate with the desired number of sides indicated.
2. Thread the detent pin in, with the tip centering in the groove in the segment number arm.
3. Rotate the splay plate up to the desired angle, and lock the position with the cam-lock. NOTE: The wall angle of the result vessel will be parallel to the angle of the detent plate.
4. Rotate the reference arm up until the bubble is centered in the spirit level, and lock it with the thumbscrew (or adjustable handle). To ensure the reference arm is parallel to the saw table, you can also use a carpenter's level on the saw table, and make sure that the JS3 bubble is in roughly the same position as the bubble in the carpenter level when they are roughly parallel on the saw table.

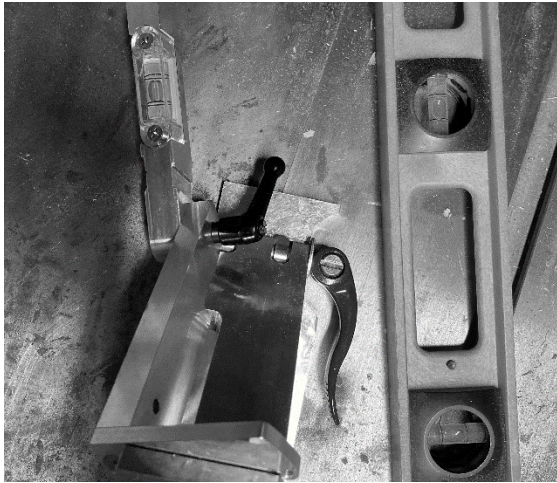


Figure 3 JS3 leveled, next to carpenter's level on surface

5. WITH THE SAW UNPLUGGED, raise the blade all the way, and push the reference arm against the platen of the saw blade. The teeth should fit in the kerf-cutout on the reference arm.

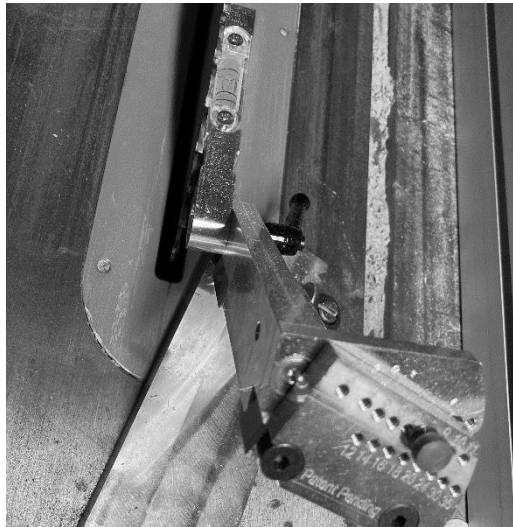


Figure 4 Setting up the blade with the JS3, Top View

6. Adjust the angle of the saw blade until it comes into complete contact with the reference arm.

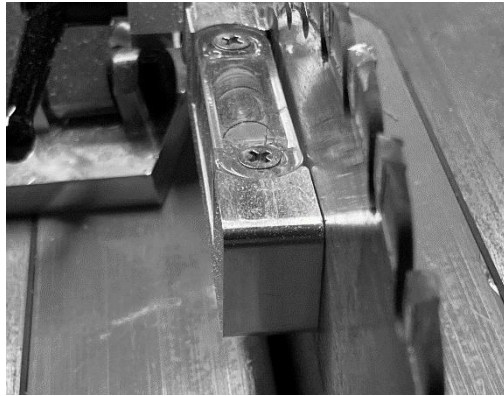


Figure 5 Setting up the blade with the JS3, Front View

7. Push the back of the base-plate up against either the platen of the blade or up against the rip fence
8. Loose the miter gage, and align the face of the miter blade so it is touching the reference arm along the entire length



Figure 6 Setting up the miter fence with the JS3

9. Tighten the miter fence

To cut the staves, make the first cut near the end of the board. This first cut is a waste piece, and only helps define one edge of the first stave. Then,

flip the board along the long axis between cuts to get the appropriate segment shape.

For safety: Make sure that the saw is off and unplugged whenever you are working near the blade! When cutting segments, use a stop-block to gage segment length, DO NOT USE THE RIP FENCE. Small pieces getting stuck between the fence and the blade can fly back towards the user and be very dangerous. Always take appropriate safety measures (including, but not limited to, eye protection) when using a table saw.

6.2 Setup and Cutting Vertical Staves

The method to make vertical staves is the same as making splayed staves, with the exception that the main hinge (between the baseplate and the angle selection plate) is closed.

The saw blade needs to be tilted appropriately, but the miter fence is set at 90° to the saw blade.

6.3 Setup and Cutting Segments

The method to make segments is the same as for cutting splayed staves, except the main hinge is opened to 90°. If the 90° set screw has been properly adjusted, the main hinge will only open this far. The saw blade should be adjusted perpendicular to the table, and the miter fence should be adjusted appropriately based on the reference arm alignment.