LMI Mortise & Tenon Templates

SPMTD/SPMTS

A detailed instructional video demonstrating the use of the O'Brien Neck Joint Routing Jig is on our website www.luthiersmerc.com. You may not be using this jig, but watching the video will give you some insights into the process of routing for straight and dovetail mortise/tenons.

*The measurements given in the instructions below are suggested. Feel free to adjust them to your needs. Whatever method you use to rout the mortise and tenon should take the neck angle of the guitar into consideration. These templates were made to work with the O'Brien Neck Joint Routing Jig (*NJRJ*) which is a tool which will help you to adjust the neck angle and cut the mortise and tenon at the same time. We have included use instructions for the* NJRJ *here.*

The enclosed hardware can be used for attaching your mortise and tenon templates to any jig you may have designed.

Hardware for attaching mortise and tenon templates

4 1/4-20 low profile socket screw
4 1/4-20 tee nut
1 Allen wrench for 1/4 inch socket screws

Using the O'Brien Neck Joint Routing Jig

You may need:
5/8 inch router guide bushing
3/8 inch straight router bit for the dovetail joint (LMI part number SPRB38)
or 1/2 inch straight router bit for the straight joint (LMI part number SPRB12)
7 degree dovetail router bit for the dovetail joint (LMI part number SP7DT)

Dovetail Mortise and Tenon

Use neck and body mock-ups to test your set up. We cannot stress enough how important it is to test on scrap material before making cuts on your actual neck and body.

**Test, test, test before beginning work on your actual instrument.

The templates you received are designed for a router using a 5/8 inch OD guide bushing. In addition to the guide bushing, you will need a 3/8 inch straight router bit (LMI part # SPRB38) and a 7º dovetail router bit (LMI part # SP7DT). **Make sure the guide bushing is not deeper than the template thickness.

- Using the 3/8 inch straight bit cut both the mortise and tenon. The mortise depth should be a skosh more than 1/2 inch and the tenon depth should be precisely 1/2 inch. Multiple passes should be made when cutting the mortise and tenon with the straight bit. 1/8 inch passes are a good rule of thumb (never rout deeper than 1/2 the diameter of the bit you are using). When you have reached the full depth of your cut, remove the router **after making sure the bit has come to a full stop.**
- Change to the 7 degree dovetail bit. The widest end of the dovetail bit may bit larger in diameter than the guide bushing diameter, so use care when installing the bit. The dovetail cut should be made in one full depth pass. Bottom the bit out in the existing routed area, then rout using the 7 degree bit. **Make sure that the router has come to a full stop** before removing the bit from the area being routed.
- Test the fit of the joint. The tenon should be proud of the mortise at this point and small adjustments will have to be made to the fit. We generally make adjustments to the fit by adjusting the tenon only. You can adjust both the mortise and the tenon, but care should be taken to remove only small amounts of material at a time. If you are adjusting the mortise, take care not to cut through the binding channel. The tenon template can be moved back a very small amount at a time (1 or 2mm) the space re-routed with the 7 degree bit and the fit is retested. Repeat as necessary. Clean up the joint and glue the joint.

Straight Mortise and Tenon

Use neck and body mock-ups to test your set up. We cannot stress enough how important it is to test on scrap material before making cuts on your actual neck and body.

This mortise and tenon templates are designed so that the tenon is slightly oversized compared to the mortise. Some hand work will be required for a good final fit.

- Test, test, test before beginning work on your actual instrument.
- Set the mortise and tenon templates adjusting them to the length of the mortise and tenon you desire on your guitar.
- Using a 1/2 inch straight bit (LMI part number SPRB12) rout the mortise and tenon on your guitar. Set the depth gauge on your router to 7/8 inch (or whatever depth of mortise and tenon you desire). Multiple passes should be made when cutting the mortise and tenon with the straight bit. 1/8 inch passes are a good rule of thumb (never rout deeper than 1/2 the diameter of the bit you are using). When you have reached the full depth of your cut, remove the router **after making sure the bit has come to a full stop.**
- Test the fit of the mortise and tenon. Once the fit is good, affix the neck to the body using the method you desire.