

STEPS 3-5

[3]

The pieces were cut so that when they were put together, there was a 1mm platform of maple beneath the spruce top – this is where the ribs were eventually attached – and a full-height rim of maple around the edge. The effect is not unlike half-edging, except that in this case the entire plate edge is made from a single piece of maple. The next thing was to glue the plates together.

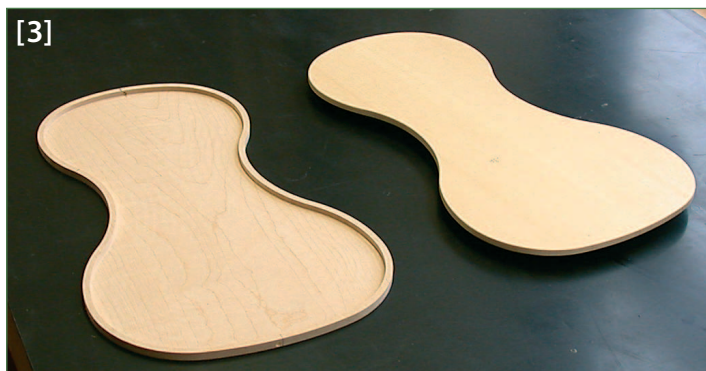
[4]

It's very difficult to get the uniform pressure required to make a good bond across such large areas using standard clamps. I use a VacuPress machine designed for laminating veneer. The principle behind this is simple. You place the object on a flat platform that is channelled to allow the air to flow under the object. The 'lid' is actually a sheet of 1.5–2mm polyurethane – a strong and flexible film – which creates a seal at the rim.

[5]

A strong vacuum pump then removes the enclosed air and the film 'lid' is vacuumed down to fit against the object on the platform. With this process, a high pressure is distributed evenly over objects of any shape.

- > In my first attempt I used hide glue as it is known to have a minimal effect on the acoustic properties of the instrument. Unfortunately it begins to gel in 30 seconds and this doesn't allow enough time to do the work. The plates delaminated and the maple peeled away when I began to gouge for graduation.
- > I used urea formaldehyde in my next attempt, as with this you get a five to ten minutes working time. I also slightly altered the cutting paths so that the inset spruce had a gap of 0.2–0.3mm all the way round.
- > Knowing that I would be graduating away most of the centre of the maple plate, I cut a figure-of-eight shape in it beforehand, to allow the pump to evacuate the trapped air between the two plates and avoid the air pockets that developed on my first attempt. I also cut holes at the top and bottom of the maple, where the neck mortice and saddle were due to go. I practised dry fitting the plates several times, so that I wouldn't have problems when it came to the real thing. It takes about a minute for the pump to extract all the air. After I did this I left it in the machine overnight to cure and then carved away the excess maple.
- > I hid the join of the two plates with the purfling inlay. Cutting the purfling channel would be quite difficult with a knife, as the cured glue is brittle, but I make my purfling channels with a small handheld router so this wasn't a problem. >



The finished spruce top (right) fits inside the maple plate



The plastic lid is vacuumed down over any object on the grooved sheet



The plates are held together by the vacuum while the glue cures