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Restoration of a Brescian style double bass

The instrument is property of Maestro Ezio Pederzani

Ribs



The ribs are made in cherry wood, and have an average thickness of 2 millimetres; cracks are present all over.

Old restorations, which are very heavy, are made in spruce, linden, and ash.

Some old linings are thin and have continuous fiber; they have been overlaid, or in some cases substituted by other pieces that are cut and bent in the way that is used for guitars. Other linings are added on the back side, in linden which is cut to shape.

Reinforcements of the same kind can be found on the side of the upper and lower blocks.







The upper rib on the E side has been repaired with three large ash doublings with transversal fiber, and some splints.



The rib shows a large number of cracks on the entire surface, and worm damages on the back side between the corner and the middle, which have been filled.



I clean the rib of all the restorations and take the linings off. I then glue a set of 1,7 millimetres thick poplar splints.

The average thickness of the rib is 2 millimetres, but drops to 1,2 near the maximum upper width of the body



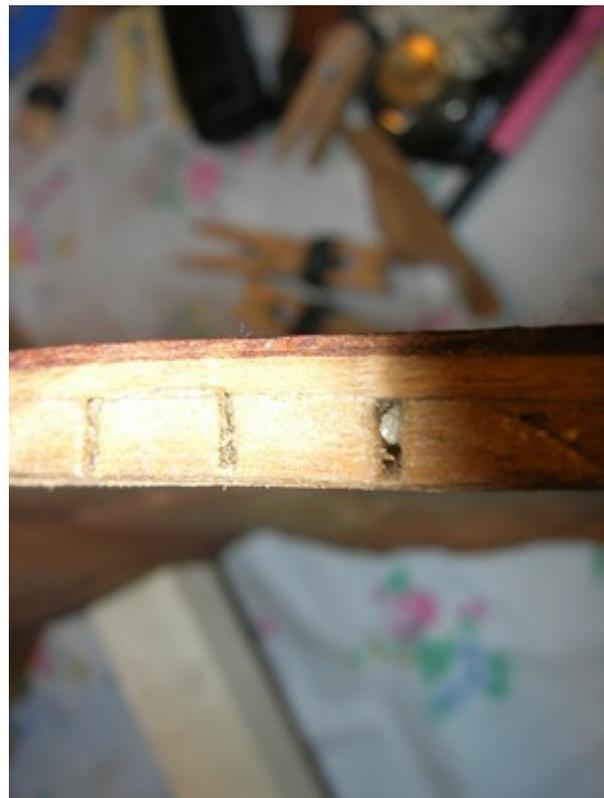
I use white maple to rebuild the missing parts and fill the shrunk cracks.



I glue poplar doublings between the splints, on the edges of the rib.



The upper rib of the G side shows many cracks as well, repaired with a large ash doubling and other small ones, with transversal fiber.



The lining on the belly side, in linden wood, is cut and bent. This overlaps a second one, maybe in poplar.

I remove all repairs and linings from the rib.



The rib is between 1,8 and 2,3 millimetres thick.

I glue a set of 1,7 millimetres thick poplar splints, with fiber running perpendicularly to the rib.



I glue doublings between the splints, at the lining areas



I rebuild the missing parts.



The lower rib on the E side shows cracks on the entire surface, repaired with ash doublings, that cover the whole rib towards the lower block.

There are three spruce splints as well, two of them covering the ash doubling.



The linden wood lining on the belly side is cut and bent, and covers a second one with continuous fiber.

The one on the back side shows reinforcements cut to shape.



The lower corner on the back side has been replaced.



There is a small replacement in the center of the rib as well.



I clean the rib from all repairs and linings.



The average thickness is 2 millimetres (1,8 - 2,1 millimetres)

During the cleaning process two missing parts can be seen along the glueing surface on the back side, at the lower block and towards the corner.

The missing parts were filled with wood and filler.



The glueing surface between ribs and back has been lowered, probably during the replacement of the lower edge of the back.

In order to rebuild the missing section, I glue a set of poplar splints longer than the current height of the rib.

I then glue the doublings between the splints.



I rebuild the missing parts, except the one on the back side next to the lower block.





The lower rib on the G side shows many cracks, repaired with ash doublings and with three large splints of linden wood.



Here too, the linings on both the back and front side are cut and bent, and are covering another set of linings with continuous fiber; on the back side the lining is partially cut to shape.



A part of the rib on the back side is missing and filled with putty.



The glueing surface of the back to the ribs next to the lower block has been lowered.  
Once the rib is cleaned, I make the poplar splints higher than the rib, to rebuild the missing part.



I then glue the poplar doublings between the splints.



I make the missing parts, up to the edge of the rib as it was before this restoration.



The upper block might be partially original. It is currently made of four different layers of wood, two side grafts, wedges and fillings.



The external layer is screwed to the inner ones, and is not original. It is made of walnut, and forms the cheeks of the dovetail neck fitting.



In the middle, two layers of spruce are glued together, with transversal fiber.

The last layer is in slab cut spruce, and the fiber is perpendicular to the ribs.

On the sides of this are two grafts, both in two pieces, that were probably made to widen the shoulders on the belly side, while tightening the back, as can be seen from the back's purfling and the front additions.



An hypothesis is that the original form had the front of the same width of the back, and that the neck was glued to the block without the dovetail joint, and the last part of the ribs glued to the neck's sides.

I decide to replace the block because of the bad condition it's in, having different woods, wedges, worm holes and side grafts, and for the necessity of remaking the neck's fitting.

To do so, I build a counterform external to the ribs.



I finish it so it can be clamped to the upper part of the ribs.





In order to remove the block, I will have to remove the wooden crosses as well.

To be able to glue them in the same place in a second moment, I measure the lengths on both top and back side, which are of 1062 millimetres at the top, and 1054 at the back.

The surfaces of the counterform copy the ones on the ribs, with an irregular convexity caused by the modifications made in the past.

I remove the crosses and the upper block.

I use the counterform the way it is to sustain the ribs while I remove the block. I will eliminate the irregularities, while maintaining the same profiles on both top and back side for the making and glueing of the new block.



During the cleaning of the ribs, two replacements on the bass side get unglued, and some splinters break off.

The two middle layers of the block, with the fiber running perpendicularly to how it is commonly used, are glued to the ribs by the endgrain, and have three holes.



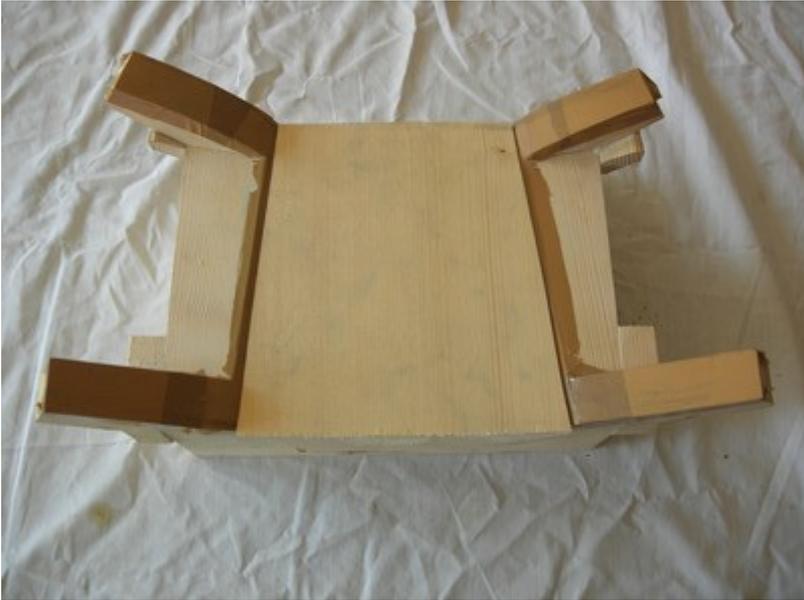
I figured that the inner layer was newer than the middle ones. It is possible that at some time a neck was nailed or screwed to the middle layers.

I modify the counterform.





I prepare the new block.





I reposition the ribs in the counterform, finish the block and glue.



I replace the two reconstructions on the E side and the missing material on the G side.



I finish the ribs from the inside with two reinforcing splints and doublings between them.



The lower block might be original as well.

It is made of four pieces of spruce, with the grain running in different directions, but all perpendicularly to the ribs



The endpin hole is off center in respect to the height of the ribs



If the hypothesis is that the instrument was played with the back edge resting on the floor, maybe with a protective "clog", it would make sense to think that an end button was used rather than an endpin, and would have been placed more towards the top, so it would not touch the floor.

As said before, the back presents a replacement of edge and purfling that would be compatible with this hypothesis.

In the same area the ribs and block have been lowered and the glueing surface altered.

The top also shows an edge replacement on the lower bout on the G side, and here as well the rib has been lowered and the glueing surface altered.

The block's glueing surface to the back is splintered and shows fillings.

An ebony inlay at the lower ribs' joint suggest that the block has been detached and reglued , maybe to shorten the ribs

The block has been cut on the sides in order to put two lateral reinforcements in linden wood.



I decide to make a new block, for solidity, and to have one of the right height.  
Since the lower surface is completely flat, the replacement does not need a counterform.  
I remove the block.



I glue the new one. The ribs are missing a part next to the top, where the saddle was partially fitted into the block.





Before repositioning the crosses to keep the ribs, I start repairing the C bouts.

The G side C bout has been repaired with some ash doublings and a large spruce splint in the middle.



Covering two straight fiber linings, there are others in linden wood; the top one is cut and bent, the back one cut to shape.



I remove the linings and reinforcements and clean the rib.



I glue a set of poplar splints and doublings between them in the lining's areas.



I rebuild the missing parts.



On the back side, the corner blocks are lower than the ribs.

I rebuild the missing parts and two replacements on the lower corner.





The very cracked E side C bout has been repaired with ash doublings and two linden splints.



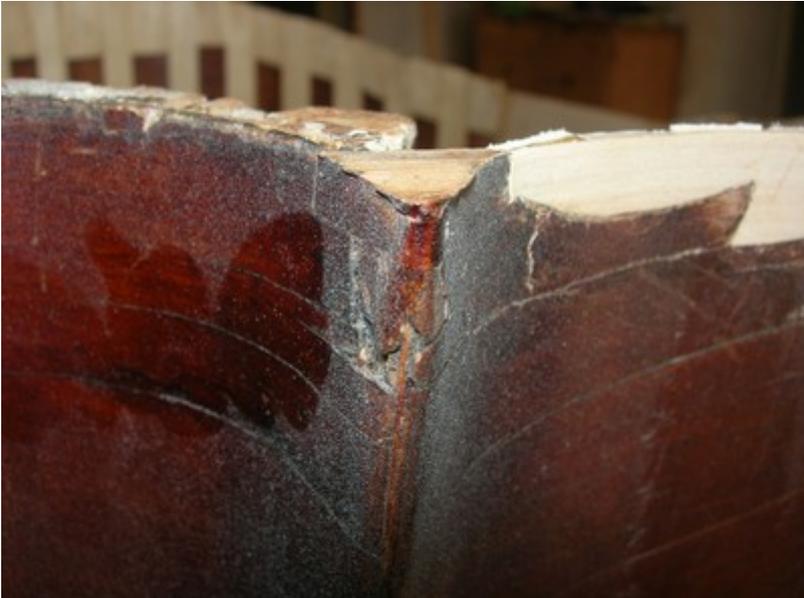
On the top side a straight fiber lining is covered by a second one, cut and bent.



On the back side the covering one is in three pieces, cut to shape.



The back corners have been replaced. Here too, it is possible that the blocks were lower than the ribs.



In proximity to the glueing surface on the back side, there is a rectangular replacement, and part of the edge is missing and filled.

At about 35 millimetres from the edge there is a reconstruction meant to fill a crack.



I clean the rib from linings and doublings.



I glue a set of poplar splints, and doublings between them.



I then finish the rib by remaking the missing parts.



After finishing the surfaces on which the linings will be glued, I cut and bend them while verifying the shape on the top and back, and then glue them.



The thickness of the ribs, together with the splints and doublings, after the finishing of the glueing surfaces, is of about 3,5 millimetres.

The thickness of the linings is of 2,5 millimetres, and consequentially the glueing surface of the ribs to the top and back will be of 6 millimetres, or 5,8 considering the finish from inside.

I finish the splints and linings by thinning out the edges and softening the corners.





I finish the inside of the lower block.



I reposition the crosses.



After finishing the glueing surface, I cut and glue the top linings.



I let part of the lining on the G side lower bout jutting, where the ribs have been lowered, next to an edge replacement and where I make and glue the missing part of the rib.



The ribs have been lowered next to the lower block on the back side as well. In this area I kept the lower block, splints and doublings higher.



After I finish the glueing surface, I replace the missing parts of the lower ribs



I finish the glueing surface, make and glue the linings of the back.





I finish the inside of the ribs, by thinning and smoothing the linings, doublings and reinforcing splints.