Tramex Moisture Meter

Notes :

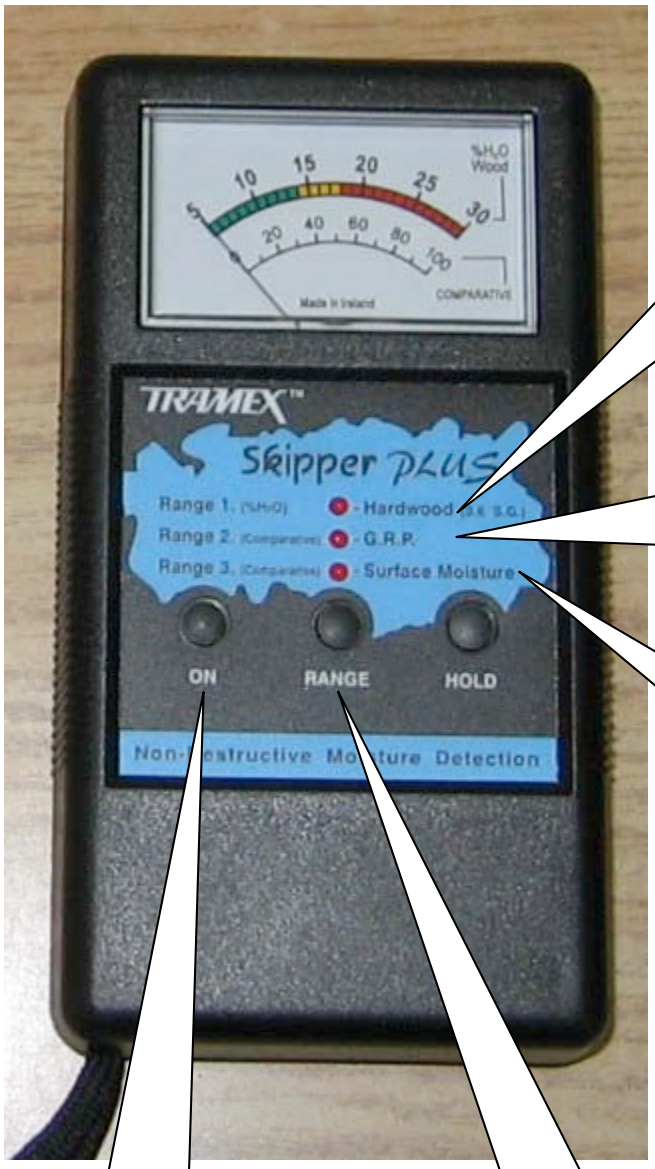
The following is an example of the use of the Tramex Moisture Meter, based on tests performed on the locker lids of my own boat.

These are the investigations of an interested boatowner, not a professional surveyor, so they may be different from other sources you read.

What you should know before beginning:

- The readings that you will obtain from the device on your own boat will not be percentages, but based on an arbitrary scale from 0 to 100. Accordingly, you should use only scales 2 and 3.
- Scale 2 is the most sensitive, and will read to the greatest depth.
- Scale 3 is the least sensitive and will read moisture levels ¾ of an inch or less from the surface.
- My observations indicate that a reading of more than 50 in the least sensitive scale (scale 3) indicate the présence of water. Nevertheless, you must make allowance for the surface on which you take readings and what is under it. The presence of any métal within will create a false reading, as will certain surfaces (foam core, for example).
- During my first test, I found abnormally high readings on the forward hatch of my boat. After drilling from the inside into the area with a 3/16- inch drill bit, I found that the material removed by the drill was wet. The readings at that time were between 40 and 50 on scale 3.

Indicator lights and buttons:



Scale 1:
- For use on bare wood of known density.
- Yields a reading in percentages, from 0% to 30%.

Scale 2:
- For use on fibreglass.
- The **most** sensitive scale.
- Yields a comparative reading from 0 to 100.

Scale 3:
- For use on fibreglass.
- The **least** sensitive scale.
- Yields a comparative reading from 0 to 100.

On/Off button.
The unit will switch itself off if the reading is unchanged for more than 60 seconds.

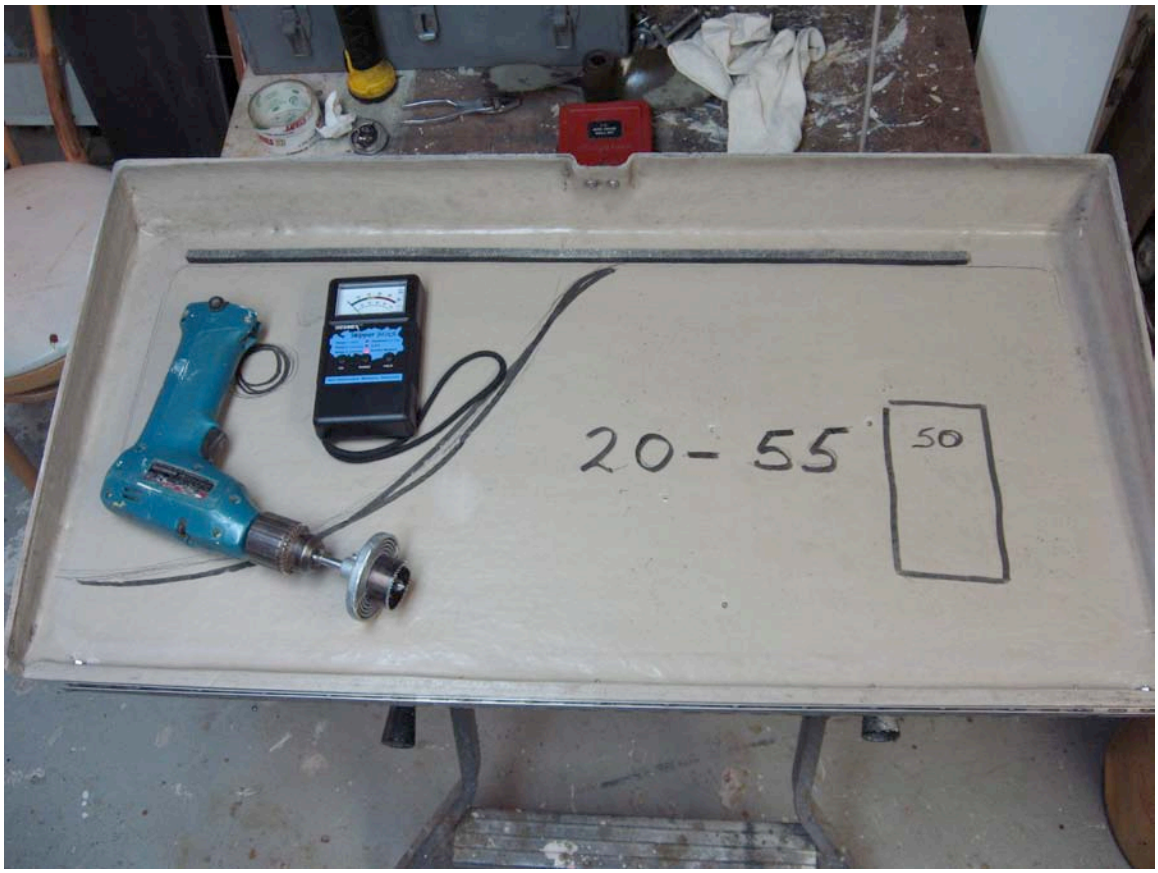
Scale selector.

The hatch cover in question. No trace of delamination or stress – this cover appears to be in good shape.

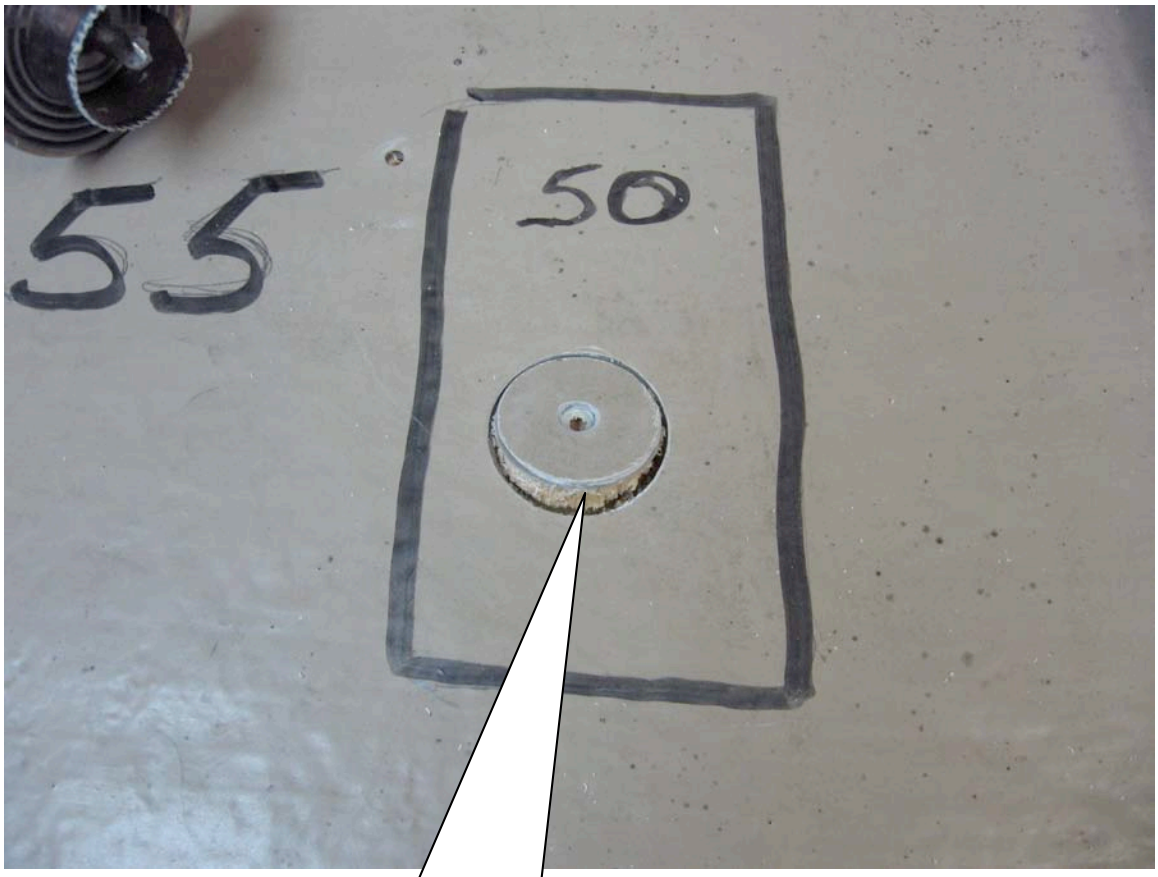
Readings on scale 3 – On one side of the cover, the meter gave a reading of 0 while on the other area, it found readings between 20 and 50, which indicated risk areas. I found the same readings on the underside of the cover.

The same readings seen on the underside of the hatch cover. We can easily conclude that these moisture readings are the result of water entering via the piano hinge.

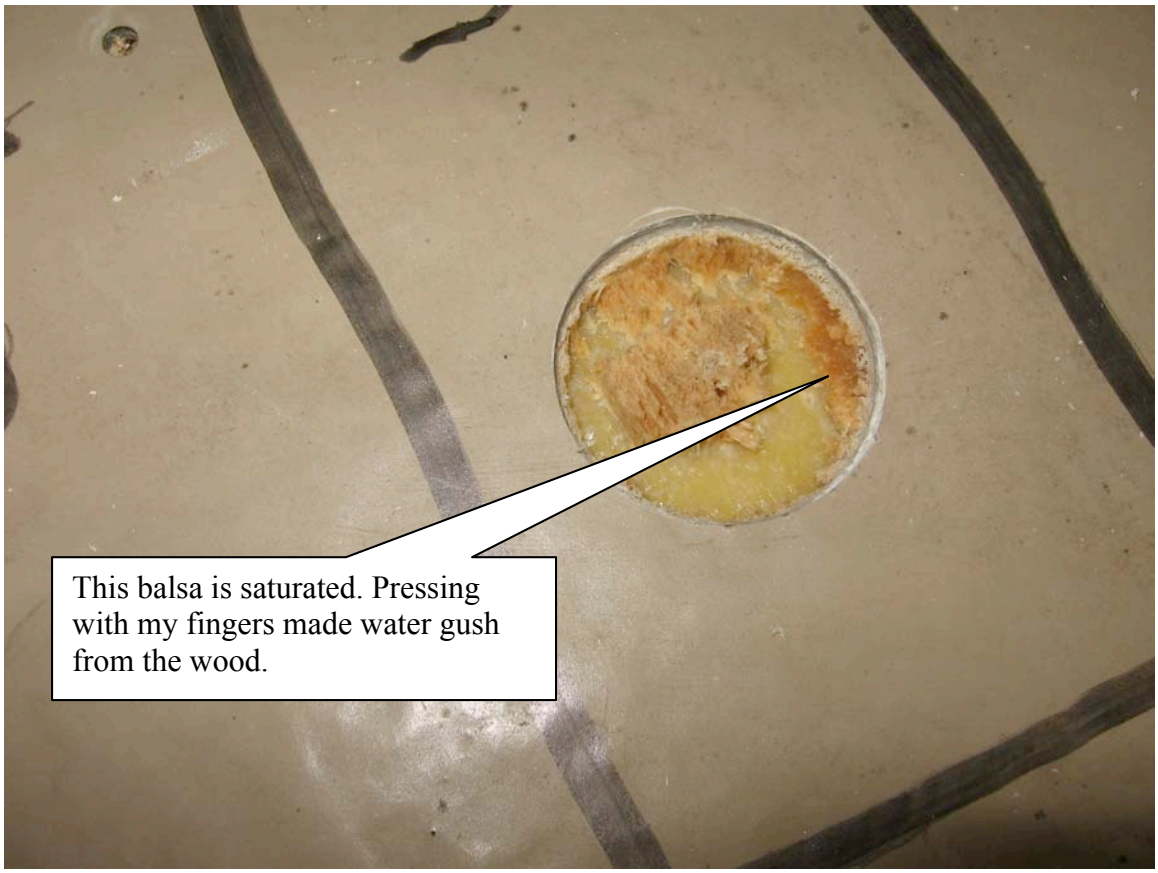
Getting more serious – Using a holesaw, I removed the top layer of fibreglass and bared the balsa within. I chose two locations for the holes, one where the reading was highest (50) and one with a reading of 0.



After drilling with the holesaw in the high-reading area, it was easy to remove the fibreglass disc within the cut.

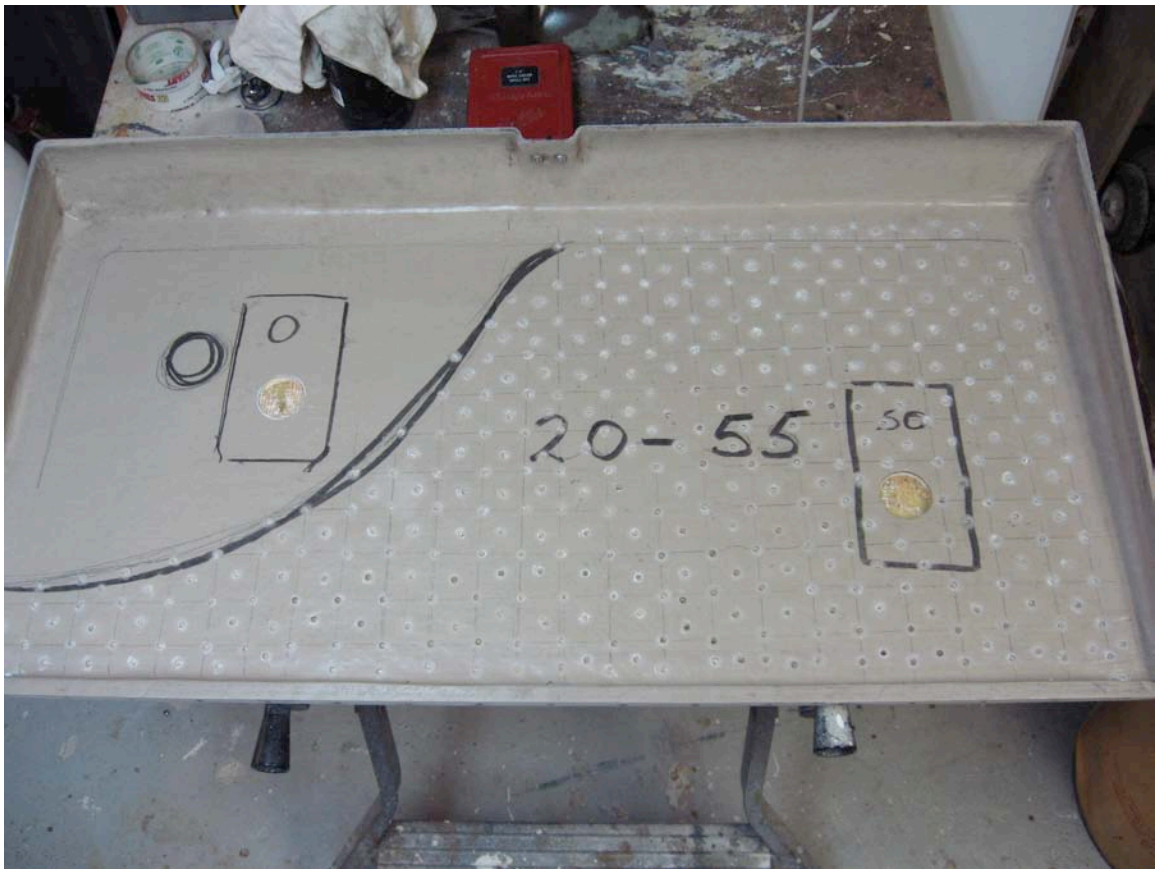


I immediately noticed moisture at this location, but neither delamination nor mould was apparent.

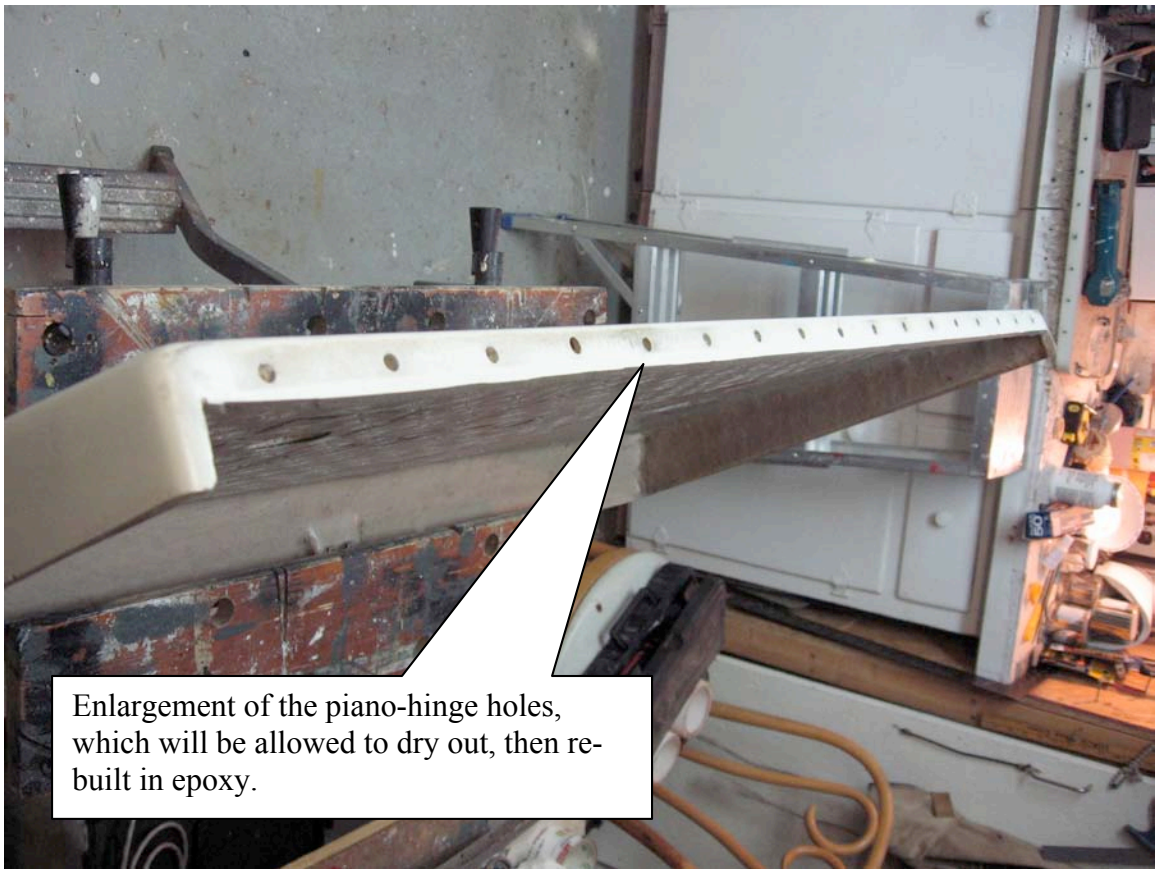

This balsa is saturated. Pressing with my fingers made water gush from the wood.

I repeated the process on a section of the cover with a low meter reading and found no trace of moisture. In contrast to the other location, the drilled-out fibreglass disc was difficult to pull out of the hole.

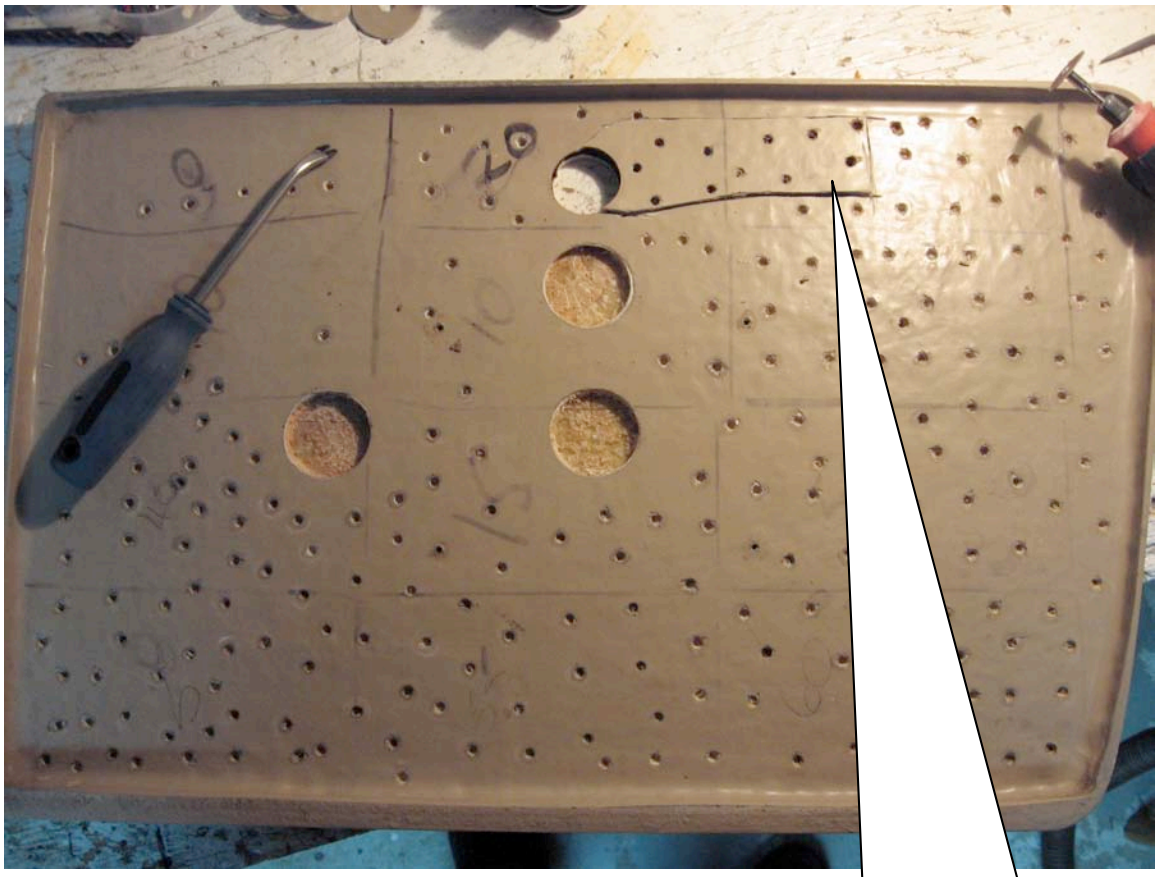
Moving on to the repair – First, I marked the area to be dried as a prelude to marking the places to drill vent holes. Lines are marked every inch to guide 3/16-inch holes, each just deep enough to pierce the layer of fibreglass.



Dealing with the source of the problem.



A similar treatment for the other cockpit cover.



Drilling of these little vent holes produced blackened balsa in some locations, indicating the presence of rot. This section will be completely uncovered and the balsa removed. The whole hatch will be rebuilt once everything is dry.

Notes :

- After opening up the cover surface, it took a good month of drying before I noticed a fall in the moisture levels. Once completely dry, they were repaired with 3 layers of fibreglass mat and polyester resin. By getting inside the locker and shutting the lid on yourself, you can mark where the flange is and make the repair thin enough at that point that it doesn't interfere with closing.
- The oversize holes for the piano-hinge screws will be filled with epoxy (VC Watertite), which will give them greater strength.