Shinai Maintenance

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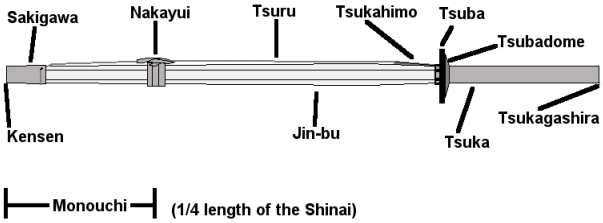
Contents

Chapter 1

Shinai Components

The **Shinai**, or bamboo practice sword, is made out of a number of different components. Each component along with its name is listed below.

- **Chigiri**. A small metal wedge inside the tsuka to help hold the shinai together.
- **Kensen/Kensaki**. The tip of the shinai.
- **Sakigawa**. The leather cup on the tip of the shinai.
- **Sakigomu**. Plastic grommet inside the sakigawa.
- **Monouchi**. The striking portion of the shinai.

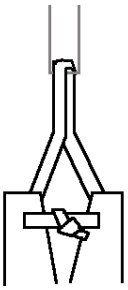


- **Nakayui**. Leather tie at $\frac{1}{4}$ the shinai's length.
- **Jin-Bu**. The portion of the shinai below the monouchi.
- **Tsuru**. The string along the top of the shinai.
- **Tsukahimo**. The leather tie on the tsuka.
- **Tsuba**. The thumb/hand guard.
- **Tsuba-Dome**. A rubber tsuba placeholder.
- **Tsuka**. The handle of the shinai.
- **Tsukagawa**. The leather covering for the tsuka.
- **Tsukagashira**. The bottom of the tsuka.

Chapter 2

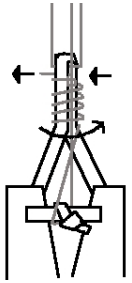
Shinai Disassembly

2.1 Tsuru from the Tsuka-gawa

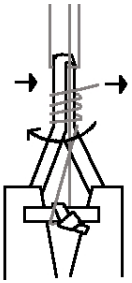


Although it looks complex, the **Tsuru** is tied to the **Tsukagawa** by a very simple knot. First, lets look at the tsukagawa itself. At the top of the tsukagawa there is a leather strap, the **Tsukahimo**, separate from the tsukagawa leather itself which passes through two holes in the leather. This strap is tied, horizontally across the shinai, in a simple knot. The slack of this strap is pulled vertically upward toward the tip of the shinai by the tension of the

tsuru. I shall refer to this upper portion as the **"Tsuka Loop"**. This leather loop is the starting point for disassembling the shinai.

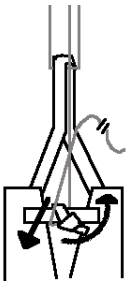


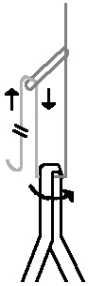
The tsuru makes a number of loops around and through the tsuka loop. The important portion, as far as disassembly is concerned, is where the tsuru makes a series of consecutive loops. These loops are made by winding the tsuru around the tsuka loop from the bottom upward. To begin the disassembly, find the final of these consecutive loops that the tsuru makes at the top of the tsuka loop. This top loop of is usually tied in a simple knot around itself with the excess tsuru passed through the tsuru loop itself.



Push the tsuru out of the top of the tsuka loop and undo the small knot. You may need a pair of "needle-nose" pliers in order to grab hold of the tsuru properly. Once undone the tsuru is now free to be unwound from the tsuka loop. Unwind the tsuru from the around the tsuka loop until you reach the top of the tsuka itself. Once these loops are unwound, quite often the tension in the tsuru is lost and the tsuru will become loose.

Pull the excess tsuru down and away from the upper portion of the tsuka loop. You will notice that the tsuru is wrapped under the tsukahimo at the point where the leather was tied together. Simply pull the tsuru out from under the tsukahimo. At this point the tsuru is essentially free from the tsukagawa save for one more part.



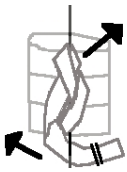


The tsuru forms yet another loop between itself and the tsuka loop. The loop within the tsuru itself shall be referred to as the **"Tsuru Loop"**. Pull the excess tsuru out of the tsuru loop and then through the the tsukahimo. The tsuru is now completely free of the tsuka.

2.2 Untying the Nakayui

Once the tsuru is free from the tsuka untying **Nakayui** is the next step. The nakayui is another leather strap which is placed on the shinai at $\frac{1}{4}$ the length of the shinai at measured down from the tip. It is wrapped around the shinai itself three times and then knotted onto the tsuru via a number of loops.

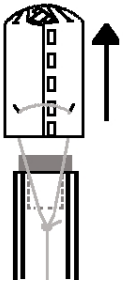
The nakayui is tied onto the tsuru by weaving it onto itself in a number (usually three) of "over and under" style knots. Pull the loose end out from under the first loop. You may need a pair of "needle nose" pliers to help pull the nakayui out from under itself as they are normally pulled tight.



Once the first loop is undone you will see that loose end the nakayui it laying underneath the tsuru. Pull the the nakayui out from under the tsuru. We can now proceed to untie the remaining nakayui loops. Each loop of the nakayui is tied in the same manner as the first, i.e., in an "under and over" weaving type knot. Simply pull the excess nakayui out from under each of these knots until it is free. The nakayui itself is usually attached to the tsuru by either a knot, the tsuru

passed through a small hole in the nakayui, or both. Simply leave the nakayui attached.

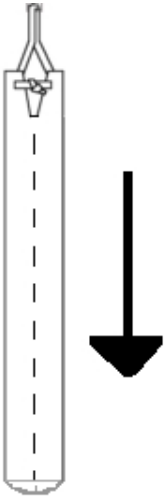
2.3 Removing the Sakigawa



Once the nakayui is untied the tsuru is free of the shinai completely. All that remains is to remove the **Sakigawa**. It is not necessary to untie the tsuru from the sakigawa unless you are replacing it, or changing the the way the tsuru is attached to it. Pull the sakigawa off from the top of the shinai together with the tsuru and nakayui, leaving them all attached together.

After pulling off the sakigawa you will see a small plastic grommet sitting inside the tip of the bamboo slats called a **Sakigomu**. This grommet keeps the bamboo slats in their proper positions. **A shinai is not usable under IKF safety standards if the sakigomu is not present.** As such, be sure to keep it in a safe place. Pull out the sakigomu.

2.4 Removing the Tsukagawa

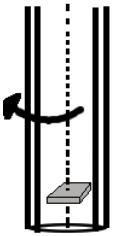


After pulling off the sakigawa and removing the sakigomu, the tsukagawa can be removed by pulling it off the end of the shinai. This is quite often one of the most difficult parts of shinai disassembly as the tsukagawa often fits quite snugly over the bamboo slats. The most effective method for removing the tsukagawa is to hold the bamboo slats above the tsukagawa in your left hand and, while gripping the tsukagawa in your right, slide your right hand down the length of the tsuka. Let go with your right, return it to the top of the tsukagawa and slide it down again. Repeat this as necessary until the tsukagawa starts to slide off of the shinai. Some say to wear a pair of rubber gloves for added friction while doing this.

When enough of the tsukagawa has slid off of the shinai such that you can securely grab hold of it, pull the tsukagawa off completely by pulling this loose excess directly.

2.5 Separating the Bamboo Slats

With the tsukagawa removed we are ready to separate the bamboo slats. However, before this is done we must label the slats according to their position in the make-up of the shinai, i.e., the top, bottom, left, and the right side slat. Labeling the position in which the slats fit together is necessary in order to have it fit properly back together. The most convenient place to mark your shinai slats is directly on their bottom face. By convention, the "bottom" slat is the one which was positioned opposite to the tsuru. Using a pen, marker, or pencil clearly mark the shinai slats with a **T**, **B**, **L**, and **R** or similar for the top, bottom, left, and right side slats respectively.

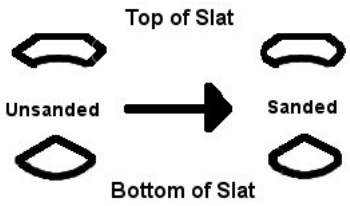


Inside the bottom end of the bamboo is a small metal insert, called a **Chigiri**, wedged into the insides of the slats. The insert helps to keep the slats together. Carefully separate the slats from each other by rolling them off of the chigiri via a twisting motion to the left or right. **A shinai is not usable under IKF safety standards if the chigiri is not present;** be sure not to lose it.

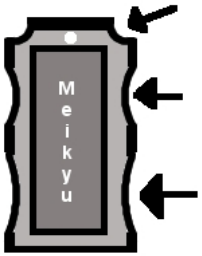
Chapter 3

Preparation of the Bamboo Slats

3.1 Sanding the Bamboo Slats

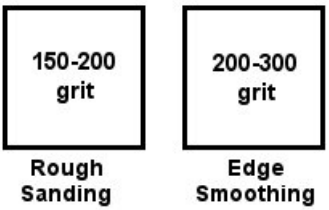


The four bamboo slats of a new shinai must be sanded before use. Each of the slats side edges come to a sharp edge which will splinter upon taking the impact of a strike. Sanding the edges will help reduce splinters from

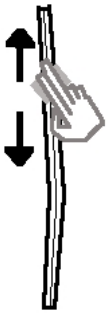


forming which will in turn increase the life span of the shinai and lower the risk of injuring your opponent. The entire length of the shinai slat edge must be sanded down such that the edges form a more rounded bevel instead of a sharp one. The sanding is best done with either sandpaper, a shinai shaving tool called a **Meikyu**, or a combination of each. The meikyu has different sized shaving grooves to sand each part of the slats.

3.1.1 Using Sandpaper

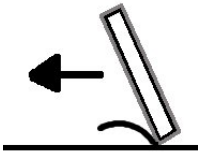


While using sandpaper to sand your shinai it is best to start out with a fairly large grit to remove the majority of the edge's mass and then moving to a smaller grit for smoothing the edges. A rough guide is to start with somewhere around 150-200 grit paper to sand the edges down and then switch to one around a 200-300 grit to smooth them out.



When sanding sand up and down along the edges of the slat being sure to follow the grain of the bamboo. As bamboo is very soft material you will be able to sand down quite a bit of mass in a very short time. Be sure to check the area you are sanding regularly to make sure you are not sanding too much. Continue sanding until the edges are rounded along the entire length of the slat. Then switch to the finer grit paper and sand again until the edges are smooth. This step is usually only required in certain areas where imperfections in the bamboo were uncovered with the rougher paper.

3.1.2 Using the Meikyu



The meikyu is used to literally shave bamboo off of the slats. As such it can reomve a lot of material ***very*** quickly. Each of the various grooves on the meikyu is used to shave different sections of the slat depending on its width. While the meikyu is not sharp per sé, its shaving grooves have very flat edges, i.e., sharp 90^o corners. The meikyu shaves the bamboo by pulling the shaving groove edge(s) across the section of bamboo you wish to

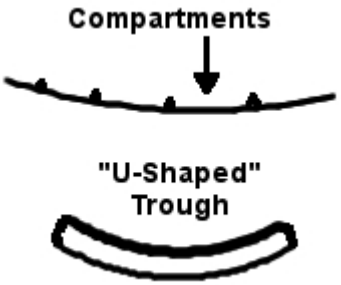
shave (along the grain). **It is important to use long, single direction strokes with the meikyu v.s. the short "back and forth" motion of sanding.** With short strokes, unless you are experienced with using a meikyu or are shaving very lightly, you run the risk of scratching the bamboo slats. These scratches, if not fixed via the meikyu or sandpaper, are a potential source of splinters and/or cracks.

3.2 Oiling the Bamboo Slats

Once the bamboo slats have been sanded down, they must be oiled. Oiling the shinai keeps the bamboo from drying out, which in turn helps to keep it from splintering and cracking. This will greatly increase the lifespan of your shinai.

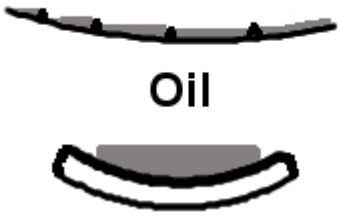
Before you oil the shinai slats, it is a good idea to clean them first with a damp (with water) cloth to remove any excess shavings or dust. Once cleaned, remove any excess water with a paper towel.

3.2.1 Oiling by Hand



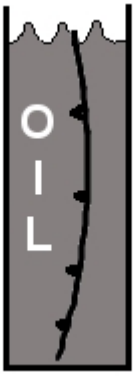
Lay the four slats out side-by-side, the inside of the slat facing upward. The inside of the bamboo slats look like a "U-shaped" trough, and this trough is divided into five separate sections by the original bamboo compartment membrane. Be sure this area is free from dirt and debris before you begin oiling.

Using a light oil (Peanut or Canola is fine) fill each of the troughs in each of the compartments with enough oil to cover the majority of its length and width. Then, spread the oil over the rest of the compartment making sure the entire surface of each compartment has oil on it. Do the same for each slat.



Leave the oil to soak into the slats for three to seven days, reapplying oil as it is absorbed.

3.2.2 Submerging in an Oil Bath



The second method to oil the bamboo slats is to submerge the slats in an oil bath. This is a much more effective method for oiling a new shinai, especially if they are particularly dry, however it does involve constructing the oil bath itself.

Simply place the sanded (and cleaned) slats into the oil bath and leave them there for three to seven days.

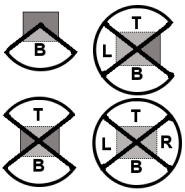
It is important that you do not leave the slats in the oil bath for too long as it is possible for them to absorb ***too much*** oil. This will cause two things to occur: one, the shinai will become much heavier due to the added weight of the oil. Two, it is possible for the bamboo to become too moist and lose some of its rigidity.

After taking the shinai slats out of the oil bath, be sure to let the excess oil drain off of them.

Chapter 4

Re-tying the Shinai

4.1 Re-assembling the Bamboo Slats



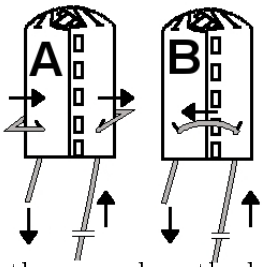
Each of the bamboo slats were marked to indicate the "top", "bottom", "left", and "right" sided pieces. Place the metal chigiri in the pre-cut groove at the bottom of one of the slats, for example the bottom one. Next, place opposite slat in place on the chigiri, lining up the two slats. Holding the two slats together with your hand place the next slat onto the chigiri, followed by the final slat. Squeeze the tsuka to ensure the chigiri is firmly in the grooves.

4.2 Re-attaching the Tsukagawa

Holding the bamboo slats together slide the tsuka into the tsukagawa. Be sure the tsukagawa is put on such that the tsukahimo is centered on one of the slats. Once the slats have been slid into the tsukagawa far enough to hold them together, let go of the slats and then use both hands (if need be) to slide the tsukagawa on the rest of the way. The tsukagawa should be snug.

4.3 Tying the Tsuru to the Sakigawa

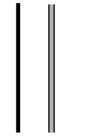
The tsuru can be attached to the sakigawa in one of two ways:
A: The tsuru is inserted into the sakigawa and loops around the back.
B: The tsuru is inserted into the sakigawa and the loops at the front.



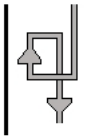
New shinai which normally come with the tsuru attached using the second method. However, the first method is the preferable one as it helps prevent the sakigawa from tearing.

Thread the tsuru through the sakigawa such that you

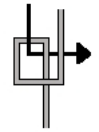
have approximately 2.5-5cm of excess tsuru on one side.



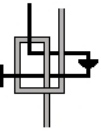
Step 1: Align the two portions of the tsuru such that they are side by side. This diagram shows the short portion of the tsuru on the left, long on the right.



Step 2: Make a loop on the long portion.



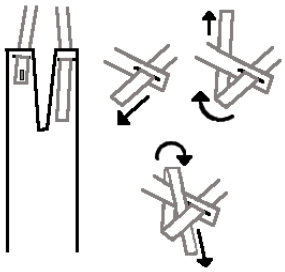
Step 3: Pass the short portion through the loop and behind the long portion.



Step 4: Bring the short portion over and in front of the long portion (descending from the sakigawa). Then pass the short portion through the loop from its back side. Pull both tsuru portions to tighten the knot.

4.4 Tying the Tsukahimo

While it is very rare that one will need to re-tie the tsukahimo it is illustrated here for completeness.



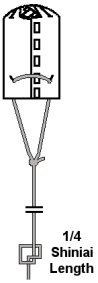
Step 1: Pass the two ends of the tsukahimo through the two small holes in top of the tsuka.

Step 2: One end of the tsukahimo has a small hole in it. Pass the opposite end of the tsukahimo through this hole.

Step 3: Bring the end of the tsukahimo that was just passed through the hole under the tsukahimo, creating a small loop.

Step 4: Bring the tsukahimo down and through this small loop making a simple knot. Pull the knot tight.

4.5 The "Nakayui Knot"



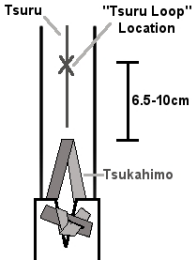
Before we proceed any further we must tie a small knot in the tsuru at the point where the nakayui will sit; $\frac{1}{4}$ the length of the shinai measured down from the tip. This knot will help to keep the nakayui in place.

Measure the length of the shinai. Then, starting at the tip of the sakigawa, measure $\frac{1}{4}$ of this length down the tsuru. Tie a small knot at this point and pull it tight.

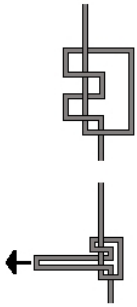
4.6 The "Tsuru Loop"

4.6.1 Location of the "Tsuru Loop"

Next a small loop must be tied into the tsuru approximately 6.5cm-10cm from the upper portion of the tsukahimo. This loop, referred to here as the "**Tsuru Loop**" is used in tying the tsuru to the tsukahimo and to more easily put the required tension in the tsuru. There are two methods for creating the tsuru loop.



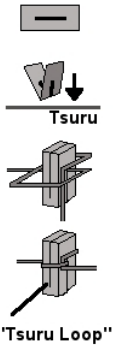
4.6.2 Using the Tsuru



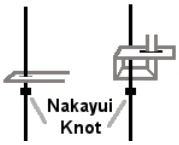
Step 1: Using the end of the tsuru opposite to the sakigawa, make a loop by tying a simple "over-and-under" knot. Leave this knot loose.
Step 2: Make a second loop by passing the tsuru through the previously made loop.
Step 3: Holding the second loop open, pull the two ends of the tsuru to close the knot.

4.6.3 Using a Leather "Komono"

Step 1: After locating the proper point to make the "tsuru loop", fold the **Komono** in half and set it onto the tsuru.
Step 2: Wrap the tsuru around the komono.
Step 3: Pass the end of the tsuru through the loop just made making a simple knot. Pull the knot tight.



4.7 Attaching the Nakayui



The nakayui must now be attached to the tsuru. There are two methods to do this.

Method 1: One end of the nakayui has a small hole in it. Thread the tsuru through this hole and slide the nakayui up the tsuru and over the "nakayui knot".

Method 2: Wrap one end of the nakayui (with the hole in it) around the tsuru above the nakayui knot. Then pass the opposite end of the nakayui through the hole in the nakayui, making a small loop. Pull the loop tight.

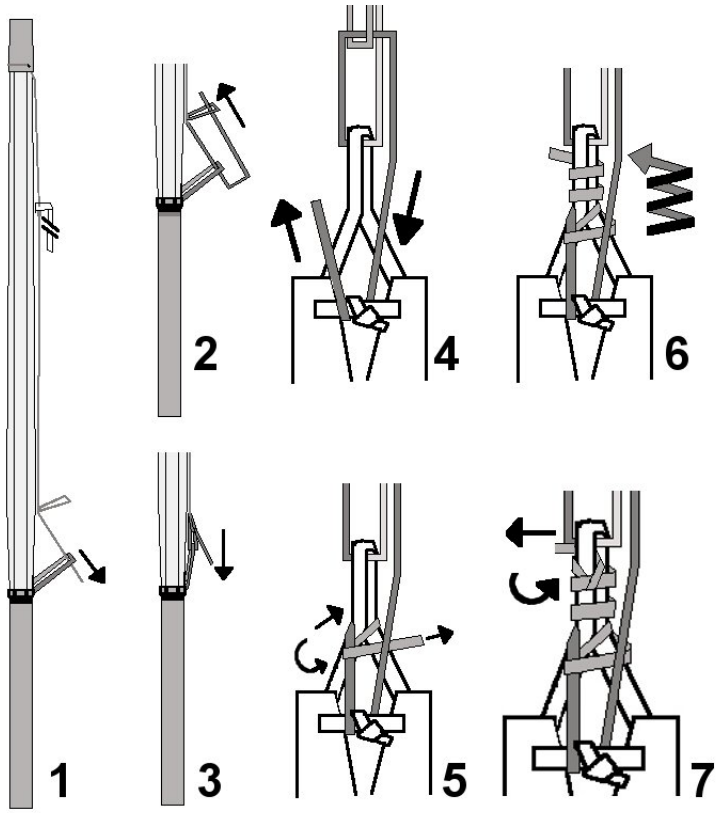
4.8 Placing the Sakigomu and Sakigawa on the Shinai

Before putting the sakigawa on the shinai be sure to place the sakigomu into the shinai's tip.

Slide the sakigawa onto the shinai's tip over the sakigomu. Be sure that the sakigawa is fully pulled onto the tip and that its seam (and the tsuru) are aligned with the tsukahimo.

4.9 Tying the Tsuru to the Tsukahimo

- With the tsuru and sakigawa on the shinai thread the tsuru through the upper portion of the tsukahimo.
- Pull the tsuru upwards and thread it through the the "tsuru loop".
- Pull the tsuru down and thread it under the knot in the tsukahimo.
- Pull the tsuru to put it under tension. Then, while maintaining the tension, thread the tsuru under the upper portion of the tsukahimo. This makes a small loop in the tsuru. Thread the tsuru through this loop and pull it tight.
- Wrap the tsuru around the upper portion of the tsukahimo until there is approximately 2.5cm-3.75cm remaining or you near the top of the tsukahimo.
- Make one more (loose) loop around the tsukhimo and then thread the tsuru through it making a simple knot. Pull the knot tight and then thread the excess tsuru through the loop made by the upper tsukahimo.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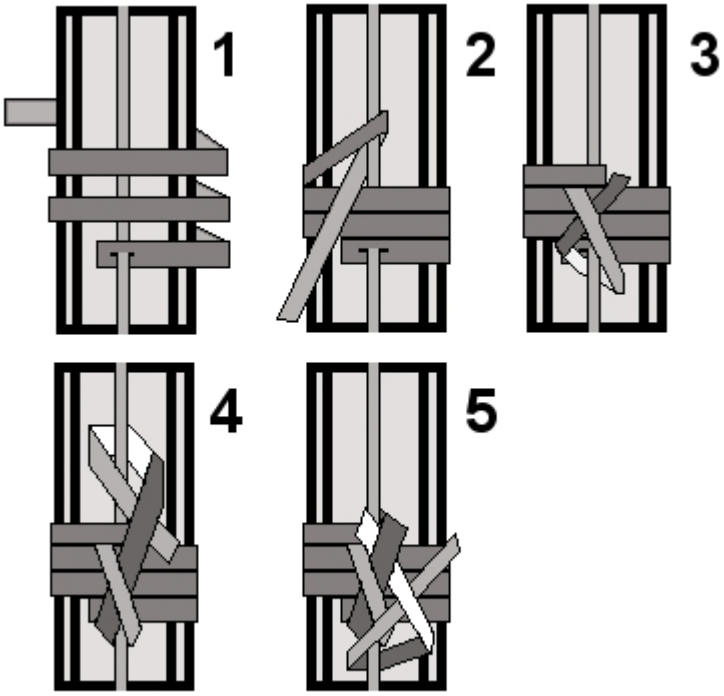
4.10 Tying the Nakayui

- Starting at the nakayui knot wind the nakayui over the tsuru and around the shinai three times. Be sure it is wound tightly.
- thread the nakayui under the tsuru making a small loop. Pull this loop tight.
- Thread the nakayui under the tsuru again making a loop. Pull the end of the nakayui through this loop and pull it tight.
- Again, thread the nakayui underneath the tsuru to make a loop. pull the end of the nakayui through this loop and pull it tight.
- Create another loop in the same manner as above, pull the nakayui through it and pull it tight.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Chapter 5

Maintaining the Shinai

5.1 Bamboo Shinai

5.1.1 Maintenance Oiling

A bamboo shinai should be oiled on a regular basis to keep it from drying out. There is no set standard as to how often you ought to oil one as it depends on the climate in which it's being used, how hard one strikes, and how often one uses the shinai. However, a good rule of thumb is to perform maintenance oiling every three to four weeks as a base, increasing that frequency as needed.

To perform maintenance oiling, simply pour a light oil onto a cloth and (liberally) rub it onto the shinai slats.

5.1.2 Rotating the Slats

To increase the lifespan of your shinai you should rotate the slats periodically. This means that you change which slat is used as the "striking slat". For example, if you were to initially mark the slats as "top", "bottom", "left", and "right" the bottom slat is the one which is used for striking as it is the slat which is opposite the tsuru. If the orientation of the slats is changed such that you strike with alternate slats any potential damage done will be spread out over four slats instead of concentrated on only one.

To rotate the slats simply untie the tsuru from the tsukagawa, undo the nakayui, turn the sakigawa and tsukagawa such that a different slat is now the "bottom", and then re-tie them. You will most likely need to remove the tsukagawa, at least partially, in order to turn it.

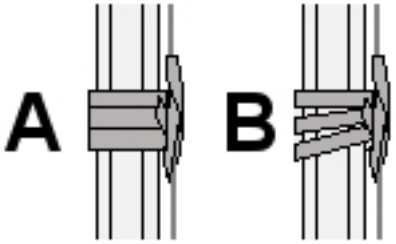
Rotation of the slats is best done when performing maintenance oiling.

5.1.3 Tightening the Tsuru and Nakayui

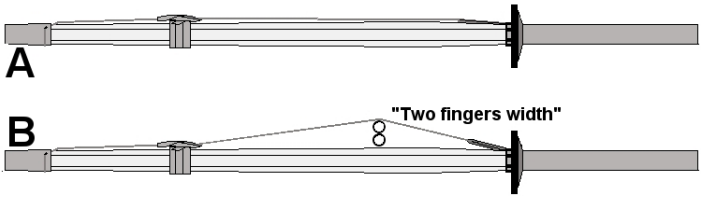
The nakayui and tsuru should remain tight at all times to ensure the safety of your shinai.

For the nakayui, the rule of thumb is that if you can rub your finger over the portion of the nakayui which is wrapped around the shinai and you can create gaps be-

tween each “loop”, it needs to be tightened.



For the tsuru, if you can fit your two fingers between the shinai and the tsuru, the tsuru must be tightened.



5.2 Carbon Fiber Shinai

Carbon fiber shinai do not need to be oiled or sanded like a bamboo shinai however, it is a good idea to rotate the slats periodically. It is also important to be sure the tsuru, and especially nakayui, are tightented before each use.

Chapter 6

Minor Shinai Repairs

6.1 Sanding Splinters

From time to time splinters will form on the slats of a bamboo shinai as a result from dryness and general wear-and-tear type damage. These splinters pose as a potential danger to one's opponent and must be repaired.

To repair any splinters:

- first disassemble the shinai as needed in order to have clear access to the damaged area.
- Using sandpaper, a file, or a meikyu sand down the splinter as well as 5cm above and below the damaged

area until all traces of the damaged area are removed.

- For large / deep splinters, it may be necessary to first use a carpenter's blade to cut off the majority of the splinter before sanding. **CAUTION:** bamboo cuts *very* easily. Be sure to cut away the splinter carefully and slowly else you risk damaging the bamboo even further.

6.2 Replacing the Fittings

The fittings (sakigawa, nakayui, tsuka, and tsuru) should be replaced as needed. If any of the fittings have holes, tears, frays, etc... they should be replaced immediately.

Chapter 7

Major Shinai Repairs

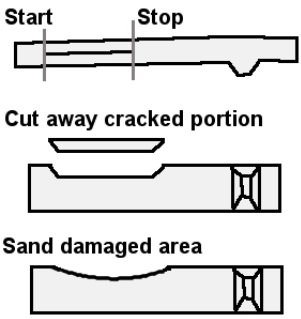
7.1 Bamboo Shinai

7.1.1 Minor Cracks

Most often if you discover a crack in one of the bamboo slats you will have to replace the slat. However, if the crack is shallow enough you may be able to salvage the slat.

- Disassemble the completely and remove the cracked slat.
- Locate where the crack seems to begin and end.
- Using a carpenter's blade, cut into the slat approxi-

mately 1cm below one end of the crack.



- Slowly cut away the cracked portion until it has been completely cut out of the shinai.
- Sand the slat along the former crack as well as 5cm above and below the damaged area making it as smooth and as rounded as possible.

Caution:

- By cutting out this portion of the shinai slat, the slat will be greatly weakened. This should be considered as a temporary fix until a new slat can be obtained.
- As a rule of thumb, if the amount removed from the slat combined with sanding decreases the width of the slat (in any direction) by approximately 10-15% or more the slat should not be used.

7.1.2 Replacing a Slat

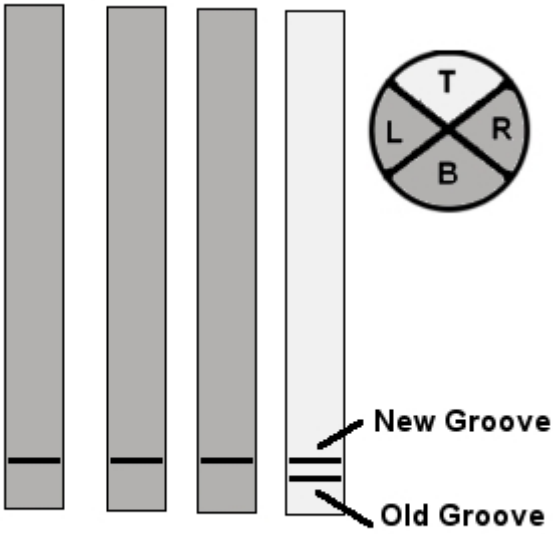
If a bamboo slat has been damaged beyond repair an extra slat (saved from a previously damaged shinai) can be used

in its place.

- Remove the damaged slat and choose a replacement that resembles the shape, size, and compartment demarcations of the original as closely as possible.
- Bring the four slats to be together, lining them up at the bottom end.
- Mark where the chigiri from the shinai being repaired touches the new slat by bringing them together (as if to put on the tsukagawa) and squeezing the tsuka. The metal chigiri will leave an indentation on the new slat.
- Using a small saw cut a new groove into the bamboo deep enough such that the chigiri fits into it completely.
- Re-assemble the shinai.

7.2 Carbon Fiber Shinai

Carbon fiber shinai slats are not repairable in any way. Should one of the slats in a carbon fiber shinai crack or break it must be replaced.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