How to Build a Voltige Barrel

(or rather, how to build two, as the second barrel adds only a slight increase to the overall expenses)

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Required Material:

Oiltank (for body of barrel)
Rods or Pipes (for legs and handles of barrel)
Foam / Sponge and Foam Tubes (to pad the barrel)
Carpet, and Cotton or Vinyl Sheet (to cover the barrel)
Hockey Tape (to cover the handles)
Paint / Spray Paint (to make the barrel look nice)
Glue or Rope (to attach the Foam/Sponge and Carpet to the barrel)
2-3 m of nylon webbing (or old longe line)
bolts & nuts

Necessary Equipment:

Blow-Torch, Welding Equipment

Price Tag:

variable, depending on your abilities, ingenuity, inventiveness, and connections

Material:	$50.00 - $250.00
Time:	5 - 10 hours; $50.00 - $200.00

Disclaimer of Liability

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The first thing is a trip to the local scrap yard. Very likely, you will find every metal piece you will need there. A used oiltank usually costs about $30.00 to $50.00, and the necessary metal rods or pipes another $20.00 to $30.00. Keep in mind that you need enough to make either four legs per barrel, or two legs and a base per barrel, plus the additional braces to give the barrels more stability. One oiltank will give two half-pieces, which will form the bodies of two barrels. You will also need four short, round rods (pipes) to be used as handles for the two barrels.

The oiltank has to be cut in half (see Figure 1). However, keep in mind that heating oil (especially its fumes) together with air in a closed compartment (such as the oiltank) can make a highly explosive mixture. **It is imperative to remove any traces of the heating oil from the tank in order to avoid an explosion**. Below is a suggestion on how to clean the oiltank.

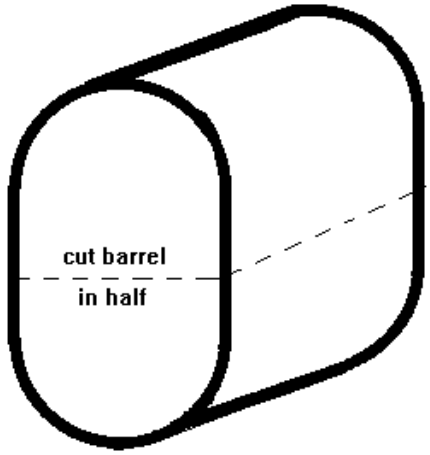

Figure 1 Cutting the oil tank in half.

When removing the residual heating oil, please be considerate to the environment. Heating oil is toxic, it will harm your lawn, contaminate your groundwater, and pollute your nearby pond or creek when disposed off improperly. Even a small amount can make large quantities of water unfit for consumption, both for humans or livestock. Furthermore, it is illegal to pour gasoline or heating oil down the sewer or in the ditch.

Your local Hazardous Household Waste Depot is equipped to deal with toxic and dangerous waste such as old paints, solvents, gasoline, or heating oil. They will be happy to help you out. Remember, you already paid for their service with your taxes, so you might as well use it; and furthermore, you are building the Voltige barrels for the children, who will suffer if you contaminate their environment.

While you are at the Hazardous Household Waste Depot, ask them if they have any old metal paint (spray cans or paint cans) you could use later to paint the barrel. Chances are that they will have a pretty good selection. This paint is usually free!!

Drain all the residual heating oil into a bucket. However, there will still be some oil left inside the tank, both in liquid and as gaseous form. Rinsing with water does not help, as oil and water do not mix. After you drained as much as possible, connect one outlet of the tank to an air blower. The "Shop Vac" vacuum cleaners (or similar) are ideal for it. Make sure that there is at least one other outlet in the tank open. Have a good stream of air blowing through the tank for at least one hour. Check the outcoming air for the smell of heating oil. Once you don't detect any smell anymore, continue blowing air through for a little while longer, just for safety's sake.

If you are certain that no oil or fumes are left in the tank, you should be able to safely cut the tank open. Again, be careful, if there is still some oil left, an explosive mixture can form inside the tank, and an explosion could occur.

You might have to cut away the outlet struts as well. Welding small metal sheets over the holes will be a good safety measure, since the children could get the fingers or hand caught or cut in the holes.

Experience has shown that it is generally not necessary to reinforce the body of the barrel from the inside, but it will add stability. However, the legs should be reinforced with braces for added stability.

It seemed to have worked best if you weld on the handles next. This way, the barrel will lie on its back by itself when you weld on the legs. The approximate measurements and the position of the handles are shown in Figure 2. You may want to fashion the handles similar to your Voltige girth. Note that during practice, all the static and/or dynamic weight of up to three voltigeurs will sometimes rest on these handles. It is, therefore, very important to attach them very securely.

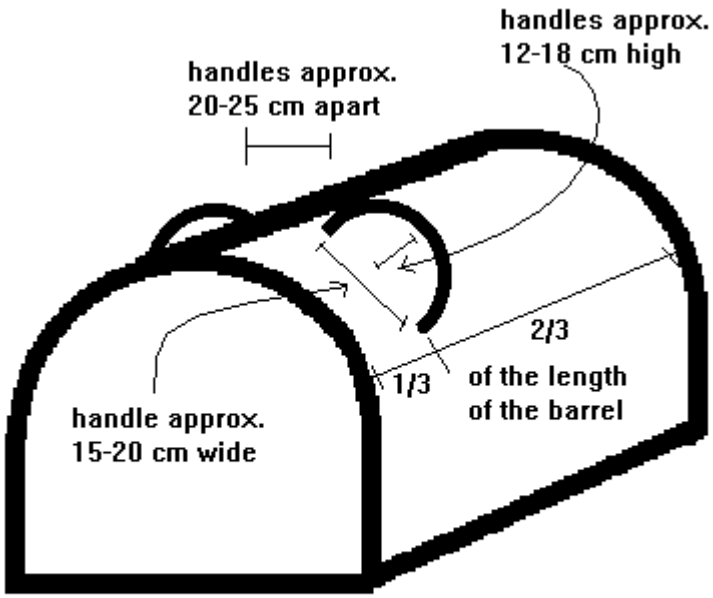

Figure 2 Position of Handles

Next, the legs should be welded on, with the necessary reinforcements. The length of the legs, i.e. the ultimate height of the barrel should be dictated by the need of the voltigeurs. If your team consist mainly of young voltigeurs, you don't want a very high barrel. The final height should then be between **140 cm to 150 cm.** For taller voltigeurs, it is better if the barrel is approximately **165 cm to 170 cm** high. As you will get two barrels from one oiltank, I suggest making one low and one high barrel. There is no ideal height that will suit all your voltigeurs and all the requirements. For spotting exercises, it is easier and safer if the barrel is lower, as the coach and spotters can support and correct the voltigeurs easier. For mounting and dismounting, however, a taller barrel is reflecting the situation on the horse more realistically. Taller voltigeurs have a tendency to develop an improper mounting technique if the barrel is too low in comparison to their body height. Acquired mistakes are very hard to remove, it is better to avoid the occurrence of such mistakes in the first place.

For the leg position, there are two choices, both with advantages and disadvantages, and you have to decide which type of barrel you and your voltigeurs will prefer:

Type A:**Four Legged Barrel** (see Figure 3)

Advantages:
* four legs will give the barrel a good, solid base for support;
* it might be easier to steady a barrel with four legs on uneven ground, than to steady a barrel with two metal sheets as a base.
* no base plate, which could be dangerous during landings, is necessary.

Disadvantages:
* voltigeurs will sometimes hit the front or hind legs with their foot during mounting. However, when the proper swinging is done during mounting, this will not occur. Furthermore, it will also teach the voltigeurs to swing in a slight arch, which is important when they mount on the horse. The horse's legs are in the same relative

position as on the barrel. Often, it will take only one or two kicks against the horse's leg or flank during mounting, and your horse will be afraid to be mounted. It will be very time-consuming to re-train your horse to accept to be mounted again.
Nevertheless, proper padding of the legs of the barrel are advised to avoid serious injuries.

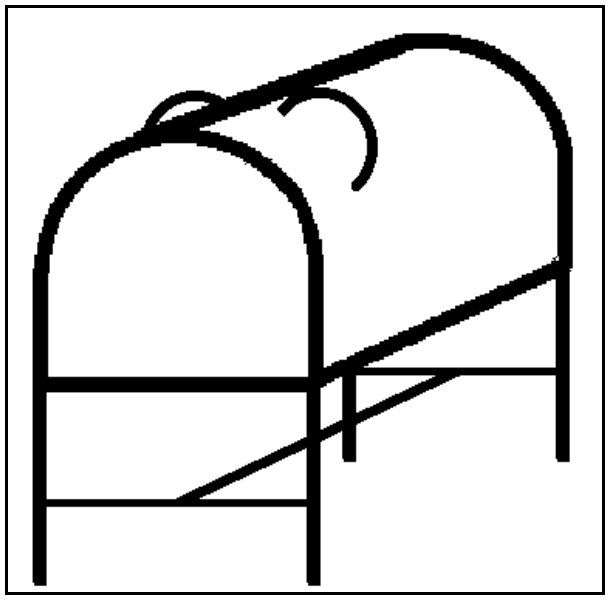

Figure 3 Four Legged Barrel

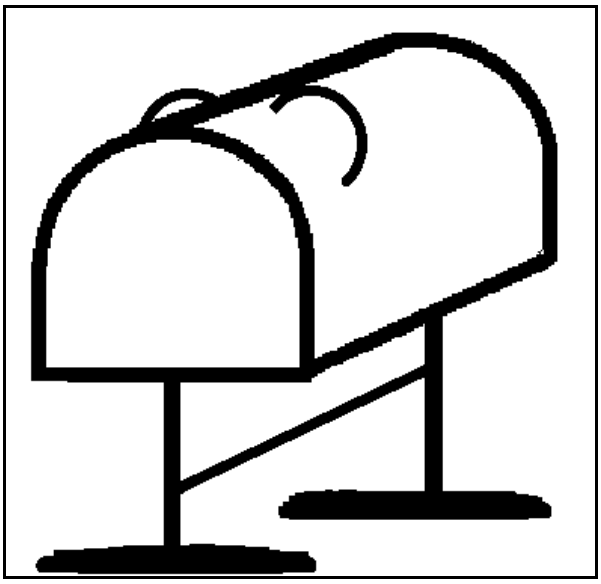

Figure 4 Two Legged Barrel with Base

Type B: **Two Legged Barrel with Base** (see Figure 4)

Advantages:
* the two legs in the middle are receded, and therefore, a voltigeur will not hit the foot against them while swinging for the mount.
* the size of the base is variable, it can be extended to give the barrel additional stability against tipping.
* this extension can be made in a removable fashion, so that the barrel fits better on a pick-up truck or in a horse trailer.
* two legs with adjustable height (see Figure 5) are cheaper than four adjustable legs.

Disadvantages:
* unless the base is made of a flat piece of metal, it will stick out from the ground. This unevenness (i.e. when using a rod or pipe as the base) could lead to foot or ankle injuries, if the voltigeurs land on it. Even though the base should be padded, a thick, elevated base will always lead to an uneven ground, and should be avoided.
* due to the central location of the legs, off-centered weight on the barrel will cause high stress on the welding seam. Unless due attention was given to this stress potential, over time the legs could separate from the barrel.
* depending on the footing (arena floor, sand, gravel, concrete), a flat piece of metal as a base might shake or rock, and may be more difficult to steady than four independent legs.

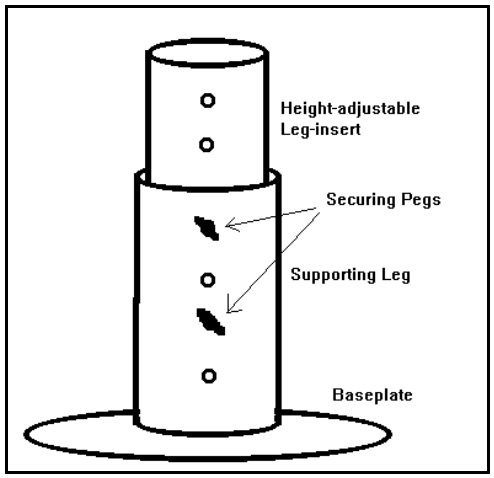

Figure 3 Leg with Adjustable Height

Several options are available for the shape, size, and diameter of the legs, and the final choice will very likely depend on the available material at the scrap yard. Solid metal rods, pipes, T-beams, or L-beams can all be used, as long as they are strong enough to carry the weight and the pressures exerted onto them and do not bent. In any case, the legs must be well padded.

If you want a luxury edition of a barrel, you can make the legs adjustable in height. The principal is the same as used in the construction industry for temporary support beams, or in gymnastics equipment such as parallel bars, high bars, or balance beams (see Figure 5). The height of the supporting leg and the length of the leg insert will determine how low and how high the barrel can be adjusted. If you plan to use the barrel indoors (*i.e.* low ceilings), legs that allow adjustment to a low height may be advantageous. If you plan to use the barrel outside, avoid excessive height, as this can make the barrel unstable. In any case, attention should be given to avoid excessive potential shaking of the body of the barrel, caused by too much free space between the stationary (guiding) and mobile (raising) parts of the leg. The use of a little wedge or shim might solve the problem.

Keep in mind that these height-adjustable legs add to the cost of the barrel (more material necessary, and more time to make the legs) and also add to the overall weight of the barrel. Furthermore, the sliding parts can be causes for injuries when adjusting the height.

Now is a good time to paint the legs and the parts of the barrel that will not be covered. These are usually the front and the backside.

After all the welding work and painting is done, the barrel should now be covered. The legs can easily be covered with the foam tubes used to insulate water pipes, available from building supply / renovation stores, or sheets of foam. Some duct tape or hockey tape will keep them securely in place. The side rim at the bottom of the barrel can also be covered with these foam tubes. This may prevent or minimize some bruises, which can occur when the voltigeurs mount too close to the barrel and hit their legs while swinging.

The handles can also be wrapped with a thin layer of foam. Hockey tape or electrical tape can be used to cover the foam and keep it in place.

For the body of the barrel, one or two layers of underpadding (sponge) make a good base. The sponge layer should not be too thick, as it makes the 'swing-exercises' (e.g. Full Flank, Leg Kicks, Scissors, etc.) very difficult. As a next

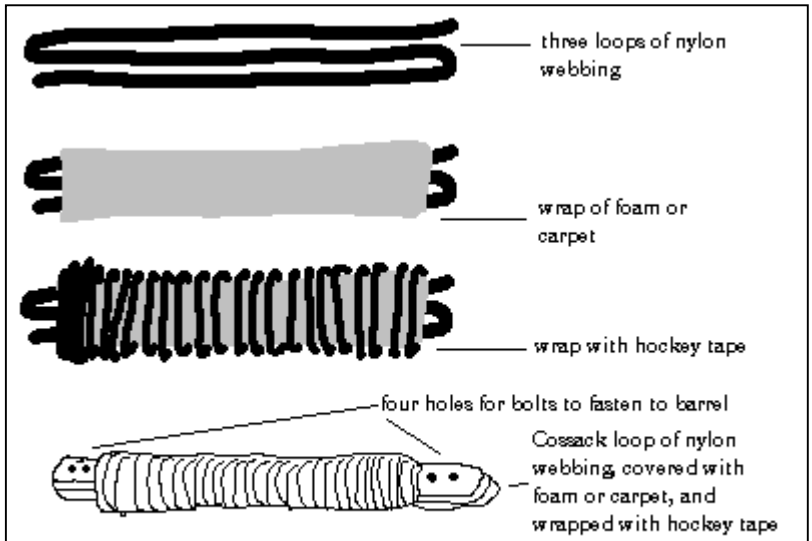

Figure 4: Creating the Cossack Loop(s)

layer, a short-hair carpet or rug will provide protection to the foam. If the carpet will be the last layer, it is recommended to have the fibers facing out. If another layer, for example a cover made of cotton or vinyl, will be added, it is better to have the fibers facing inside, and the underside of the carpet facing out. This way, the cotton or vinyl cover is resting on a firm base. The carpet can be tied down with rope, weaving it from side to side under the barrel. Wrapping it over the top of the barrel is not recommended, as it will form little bulges, which can be uncomfortable.

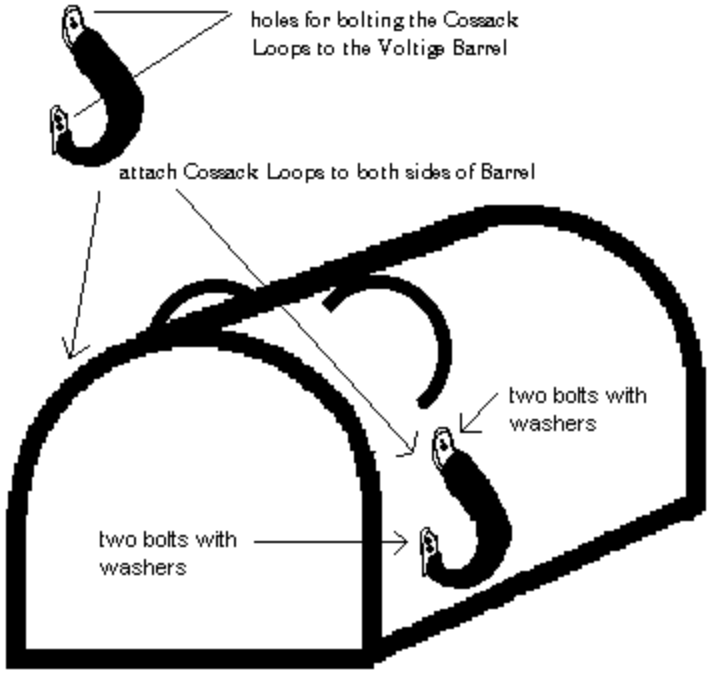

Figure 5: Barrel with Cossack Loops

Once the barrel is covered, the Cossack loops can be added. Two or three layers of nylon webbing (*e.g.* an old longe line) covered by a thin layer of foam and wrapped with hockey tape makes strong and comfortable Cossack loops. The length can be varied, depending on the style of Voltige girth your voltigeurs are used to. It can be bolted to the barrel; two bolts on the top and the bottom, respectively, are recommended. Large-sized washers will prevent the bolts from slipping through the holes.

These guidelines on how to build a barrel are based on our experience. If you have any suggestions for improvements, or questions about the barrels, please feel free to contact us. Our phone number (Sonja and Uwe) is (613) 835-9523. Visit our web site at www.horses-of-the-sun.ca for more information about Voltige.

We strongly discourage the use of metal drums to make a Voltige barrel. The main two reasons are a) the round shape of the drums is not comparable to the horse's shape, and b) the drums usually have supporting ridges, which will be felt when performing certain exercises (such as sitting, kneeling, rolling, ..).