



# Model for Saddle Storage Supports – Instructions for Fabrication

By Amber Tarnowski and  
Rachel Metz  
Collections Management  
U.S. Army Heritage and  
Education Center

# Materials:

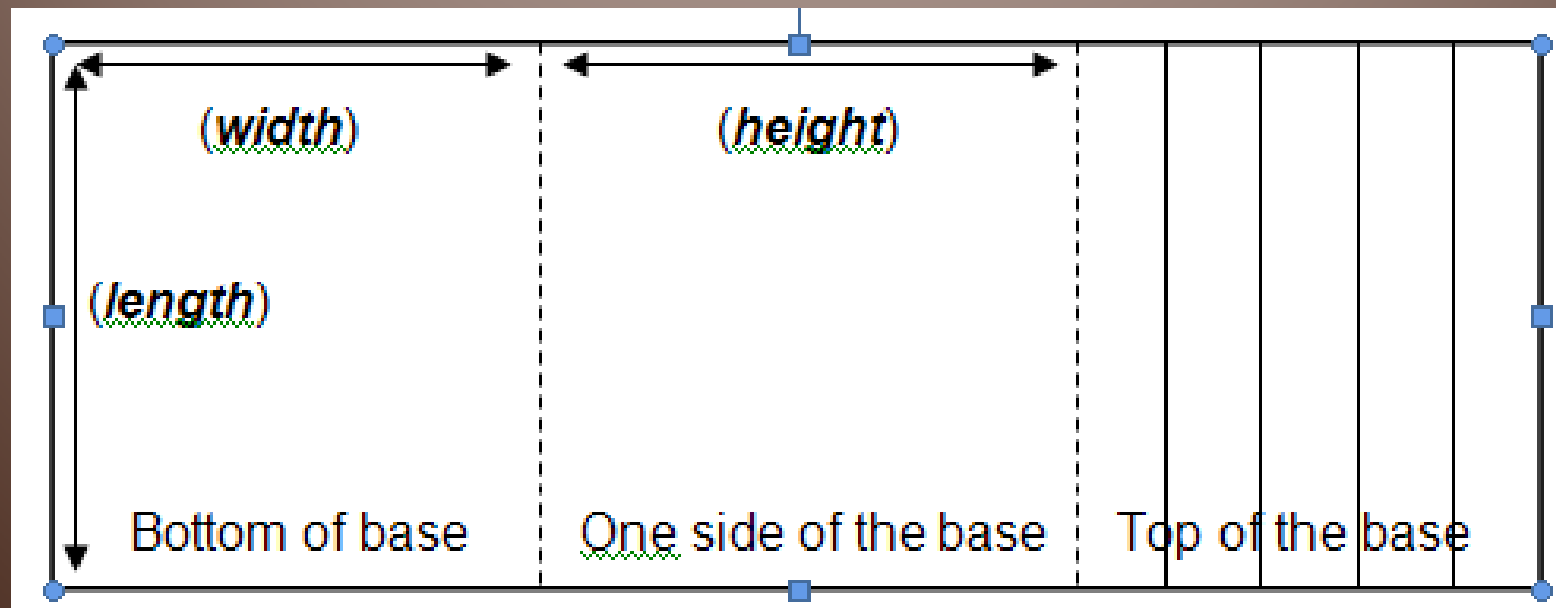
- Corrugated board
- Ethafoam
- Tyvek
- Polyester Batting
- Hot glue gun
- Hot glue sticks
- Silicon mat (for the hot glue gun)
- Pencils (not pens)
- Cardboard cutter
- Cutting board
- Foam cutter
- Right angle ruler
- Clamps
- Wooden/plastic glue stick
- Tyvek tape

# Measuring The Horse Saddle

- 1. Put the saddle in a position where it can be safely measured (on a stool, or on a pre-made generic saddle mount)
- 2. Measure **height** (how high the mount needs to be to keep the saddle from touching the ground), **length** (the distance between the front of the seat and the end of the seat), and the **width** (the distance between each stirrup when the saddle is resting in a non-distressing position). The **width** will be the most flexible measurement. Add a few inches to each measurement if your storage area for the saddle mount allows for it.

# The Base

- 3. Draw out the measurements on a piece of corrugated board.
- 4. Using the cardboard cutter, cut the corrugated board to adjust for the length of the saddle, but leave the extra end of the board uncut. With the remaining area, draw vertical lines 1 ½ to 2" apart.

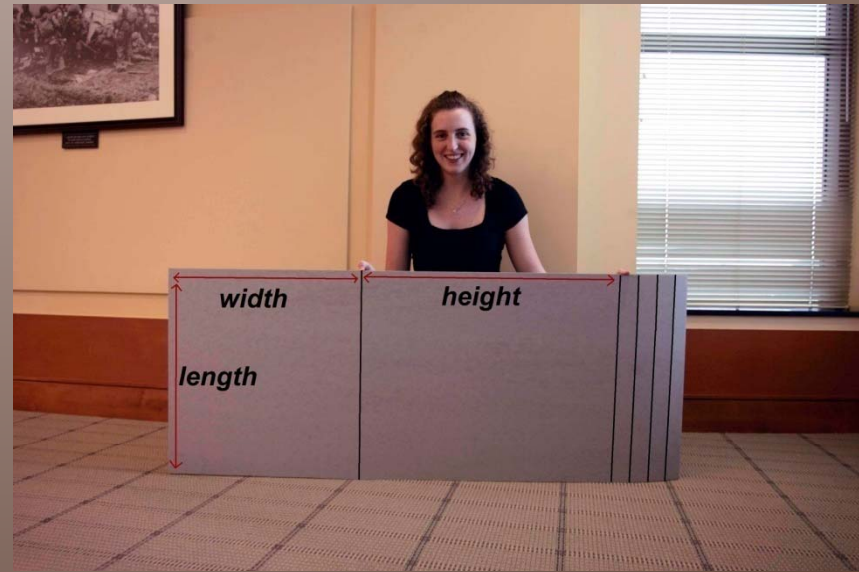


# The Base (cont.)

Here is what your base may look like after you've drawn the lines



Here is what the base looks like with exaggerated pencil lines based on the diagram on the previous slide.



# The Base (cont.)

- 5. Run the cardboard cutter lightly over each vertical line so that the corrugated board can bend on the lines. Do not cut through the corrugated board. The idea is to keep this piece together to improve the structural strength.
- 6. Repeat steps 3-5 on a new piece of corrugated board so that you have two identical pieces for the base.
  - \*\*Helpful hint: when deciding on a length for the vertical lines for the top of the base, make them 1/8" larger or smaller than the first piece so that the piece with larger lines can overlap the piece with smaller lines and match evenly. This rule does not apply to the *width* or the *height* of the base because it is critical that these distances are exactly even.



# The Base (cont.)

- 7. For more support, create two more pieces that are identical to the first two pieces, except do not include the vertical lines for the top of the base. Cut the top part off so that you are left with 2 identical pieces that have the measurements for the **height**, **length**, and **width** of the saddle mount. Lightly cut the line between the **width** and the **height** so that the corrugated board bends but does not separate.



# The Base (cont.)

- 8. Glue one new piece to the inside of one of the original pieces so that the corrugated board appears to be double thick everywhere but the on the top. Do this for each original piece.



# The Base (cont.)

- So now, you should have two identical pieces that look like this:



# The Base (cont.)

- 9. Face both pieces towards each other so that they are bending towards each other with one “bottom of base” overlapping the other “bottom of base”. Glue the overlapping area together.



# The Base (cont.)

- 10. Glue one of the “top of base” pieces on top of the other piece. The larger “top of base” should be on top of the other “top of base”. If needed, use clamps to hold the top together while it dries.
- 11. Let the glue dry. There should be one solid piece at this point, although it may have trouble standing straight up on its own without slouching.



# Base Supports

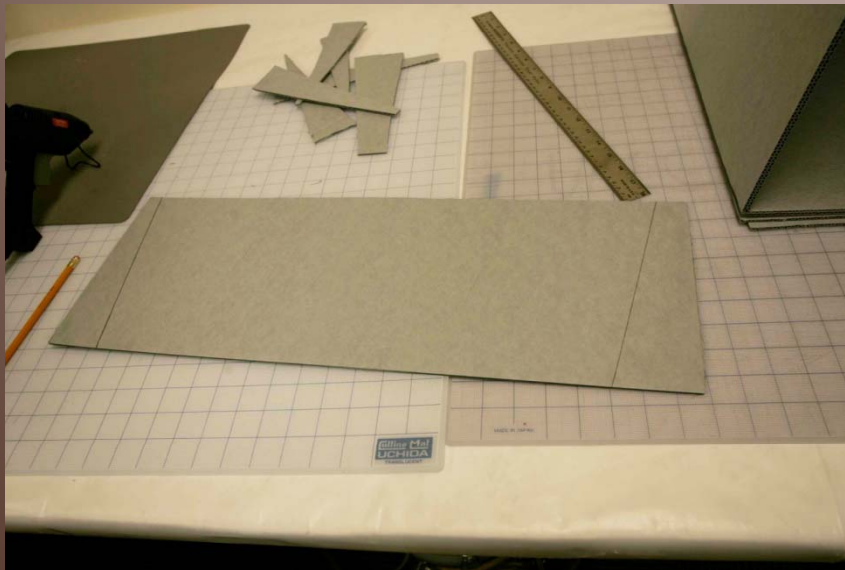
- 12. Cut a piece of corrugated board that is a few inches in height (3-6) and longer than the *width* of the base.
- 13. Hold the piece horizontally against the outside of the open part of the base on the bottom with one hand. With the other hand, draw pencil marks on the inside of the rectangle that run against the edge of the base. When the rectangular piece is pulled away from the base, the pencil marks should outline a trapezoid shape.
- 14. Cut the edges off of the rectangle to form the trapezoid piece.



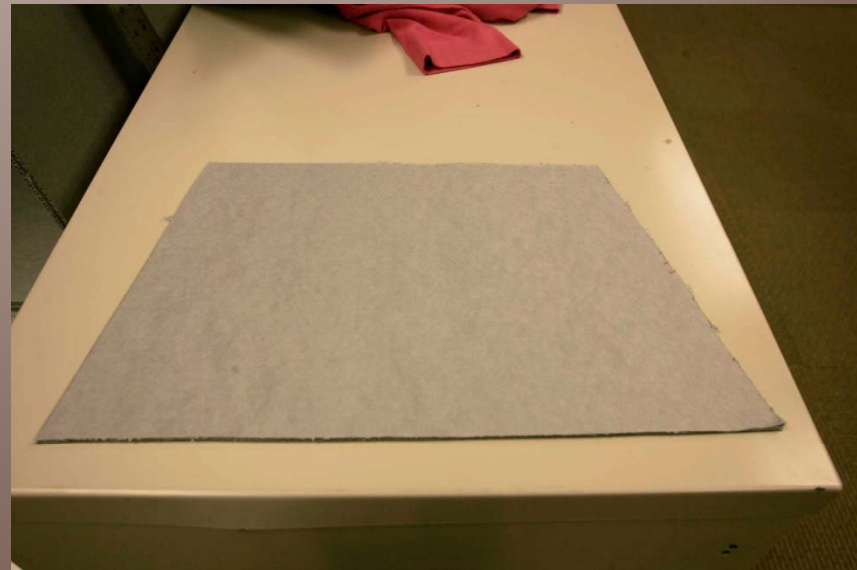
Using the pencil to draw straight lines on the small rectangular piece

# Base Supports (cont.)

Here is what the support should look like once you have drawn the lines (Step 13)



Here is what it should look like after you cut along the pencil lines (Step 14)



# Base Supports (cont.)

- 15. Glue the trapezoid a few inches deep in to the base at the same place where it was measured. This should begin to prevent the base from slouching.
- 16. Repeat this 3-5 times, covering a range of heights and using both open sides of the base until the base does not slouch and not bend when weight is added to the top of the base.



# Top Ethafoam Support

- 17. Once the base is completed, ethafoam is used to create a custom resting area for the saddle. Start with a piece of ethafoam is that about the length and width of the top of the base and is 4" high. Cut an upside-down, 1" U-shaped portion out of the bottom of the ethafoam so that it fits comfortably on the top part of the base.



The bottom is carved out to fit properly on top of the base.

# Top Ethafoam Support (cont.)

- 18. When the ethafoam block is able to be placed on the base with a flat, level surface at the top, cut the two long edges at an angle to eliminate the right angle edge but keep a flat area in the middle that has about the same width as the inside of the saddle seat.



By carving the edges at an angle, the saddle can rest more comfortably on the top.



# Top Ethafoam Support (cont.)

- 19. Glue the piece of ethafoam to the top of the corrugated board base.



# Top Ethafoam Support (cont.)

- 20. Using a new piece of ethafoam, carve 2 upside-down U-shapes that are about 3-5" thick, while keeping the bottom off the U flat. Using pins to hold both upside-down U-shapes in place, mark where each support will need to be glued, and continue to carve each shape down until they fit comfortably under the front and back of the saddle while still allowing it to rest on the first ethafoam piece.
- 21. When both ethafoam upside-down U-shaped supports fit and are marked for distance, glue them to the flat surface of the first ethafoam block.



# Polyester Batting

- 22. Every surface of the ethafoam needs to be covered with polyester batting. This can be done by using one large piece of batting and gluing one area down at a time. An easier way to cover the ethafoam is to cut pieces for each surface level and gluing them on one at a time.
  - \*Helpful Hint: Polyester Batting is very thin and hot glue tends to melt through it easily. To avoid burning yourself, use a glazed wooden or plastic stick to hold down surfaces while they drying instead of using your fingers.
- 23. If any pieces of the polyester batting do not completely touch, they can be lightly sewn together to support all areas about the ethafoam.
- 24. Re-check that the horse saddle still fits on to your mount. It should be able to be placed straight down on to the saddle mount without pushing, and should be able to be lifted off without serious pulling.

# Stirrup Supports

- 25. Using more ethafoam, create a piece that is a few inches deep that fits comfortably on one stirrup. The ethafoam support for the stirrup should be as full as possible to support the stirrup but should not be large enough that the stirrup needs a lot of force to pull it off.
- 26. Put the horse saddle on the saddle mount and mark where the ethafoam support should be glued, keeping in mind that it needs to be high enough so that the leather straps do not bear any of the weight from the stirrup.
  - \*Helpful Hint: If you mark where the stirrup rests on its own, place the ethafoam support  $\frac{1}{4}$  -  $\frac{1}{2}$  and inch higher.
- 27. Repeat steps 25-26 for the other stirrup.
  - \*Helpful Hint: Not all saddles have perfectly symmetric stirrups. Make sure that each stirrup is fitted with a custom piece of ethafoam. Do not simply make 2 ethafoam cut-outs of the exact same shape and size.
- 28. After taking the horse saddle off of the mount, glue the ethafoam supports for the stirrups in the proper places.

# Stirrup Support (cont.)

This is how the ethafoam support should look after it is covered in tyvek

The stirrup should fit comfortably on the support. Notice that the ethafoam support was placed high enough that there is limited strain on the leather straps from the weight of the stirrup.



# Tyvek

- 29. Every exposed surface of a) the corrugated board, b) the polyester batter, and c) the ethafoam stirrup supports needs to be covered in tyvek paper. This is most easily done by focusing on one area at a time.
  - \*Helpful Hint: Hot glue burns through tyvek very easily. Put the hot glue gun on the lowest temperature setting possible, and use the wooden or plastic stick again to hold the tyvek in place instead of using your fingers.
- 30. Make sure that every area where the hot glue burned through gets covered by Tyvek tape. No area of the saddle should be touching anything but tyvek.
- 31. Re-check the mount by placing the horse saddle on it and looking for surfaces that are touching a material other than tyvek. If necessary, take the horse saddle off and add more tyvek to cover all exposed surface areas.

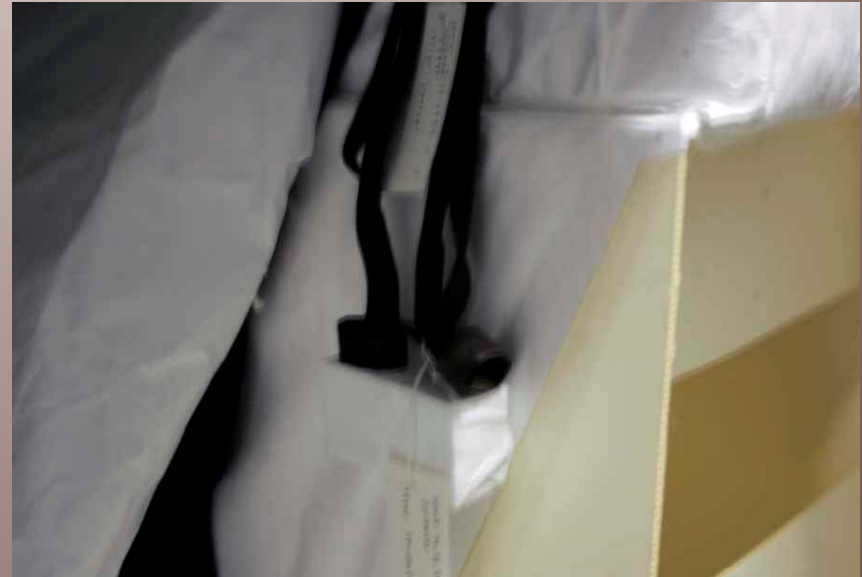
# Yee-haw!

- Your saddle mount is complete. It should look something like this:



# Extra Features

- 32. If there are extra pieces of the saddle that hang off of the side, they should either be supported by an ethafoam block (covered with tyvek) underneath or holes can be punched through the corrugated board and strings pulled through to support the weight of the extra parts of the saddle.



# Extra Features

- 33. If there are extra pieces of the saddle that are not attached, utilize the space on the inside of the mount and create tyvek-covered ethafoam supports to hold the extra pieces in place.



# Extra Features

- **Saddle Mount Covers**
- 34. Use large sheets of tyvek to cover the saddle mounts to prevent exposure to dust.
- 35. For further protection, custom sew a tyvek cover with an elastic bottom to prevent exposure to dust, pollution, and small animal damage such as mice.



# REMEMBER:

- \*Always use the proper type of gloves (Nitrile Gloves) when handling a saddle to avoid unnecessary damage to the artifact
- \*Use two people to move the horse saddles on and off of the mount
- \*Use two people to move the mount once the horse saddle is resting on top
- \*Never use pen around the artifact or on any materials that will touch the artifact
- \*Never cut anything while the horse saddle is on the mount
- \*Never glue anything while the horse saddle is on the mount