

Constructing a Curved Windshield

by Stephen K. Yokubaitis

When I decided that I wanted a curved windshield on my [Riviera](#) I realized that I was going to have to design it myself and work with whatever available materials I could find. After a lot of searching, primarily on the internet, I settled on a rather simple design composed of easily obtainable parts that resulted in what I think is a nice solid windshield with very clean lines. I thought that it might be worthwhile to describe the process and make it available to other boatbuilders.



Here is my story, along with a list of the materials that I used and (in those instances that I can remember) where I purchased them (see the photos at the end of this article documenting the process):

First, construct a template from cardboard to use to cut your Lexan windshield (I chose to use Lexan rather than Plexiglas because it has a smaller bending radius).

Use a straight side of the Lexan for the top of the windshield and scribe the bottom to the curvature of the deck. Trace the bottom of the windshield on the deck to aid in locating holes to be drilled through the deck for the hold-down fasteners.

Once the bottom of the windshield has been traced onto the deck, holes are then drilled through the deck and from these locations matching holes can be drilled through the Lexan for the hold-downs. The hold-downs can be easily bent to match the angle of the windshield at each point.

With the windshield and vinyl channel held in place with the hold-downs you can start fitting and cutting the front half of the top windshield trim (gunwale molding). Holes are drilled through this molding and countersunk, then the

molding is clamped onto the windshield along with the back side molding (rub rail molding); securely hold in place with as many clamps (and hands) as will fit.

You want the two moldings tight against the Lexan surfaces; the front molding (gunwale) tight against the top edge of the Lexan and the rear molding (rub rail) tight against the overhang of the front molding. The front molding is then used as a guide to locate the holes to be drilled "in place" through the existing holes in the front molding continuing through both the Lexan and the back molding. The holes in the Lexan are later redrilled to 1/4" to accommodate the vacuum hose grommets.

The vinyl channel also needs to be trimmed to suit. It is best to trim the upper part of the channel around the aluminum windshield trim but to leave the bottom of the vinyl channel under the ends of the aluminum trim to protect the deck.

My windshield measures approximately 15" at the centerline of the boat by 92 1/2" along the top edge of the windshield. It slopes approximately 37 degrees from vertical at the boat's centerline to nearly vertical at the outside ends of the windshield. At its base my windshield is offset approximately 11" forward of the cockpit edge at the boat's centerline.

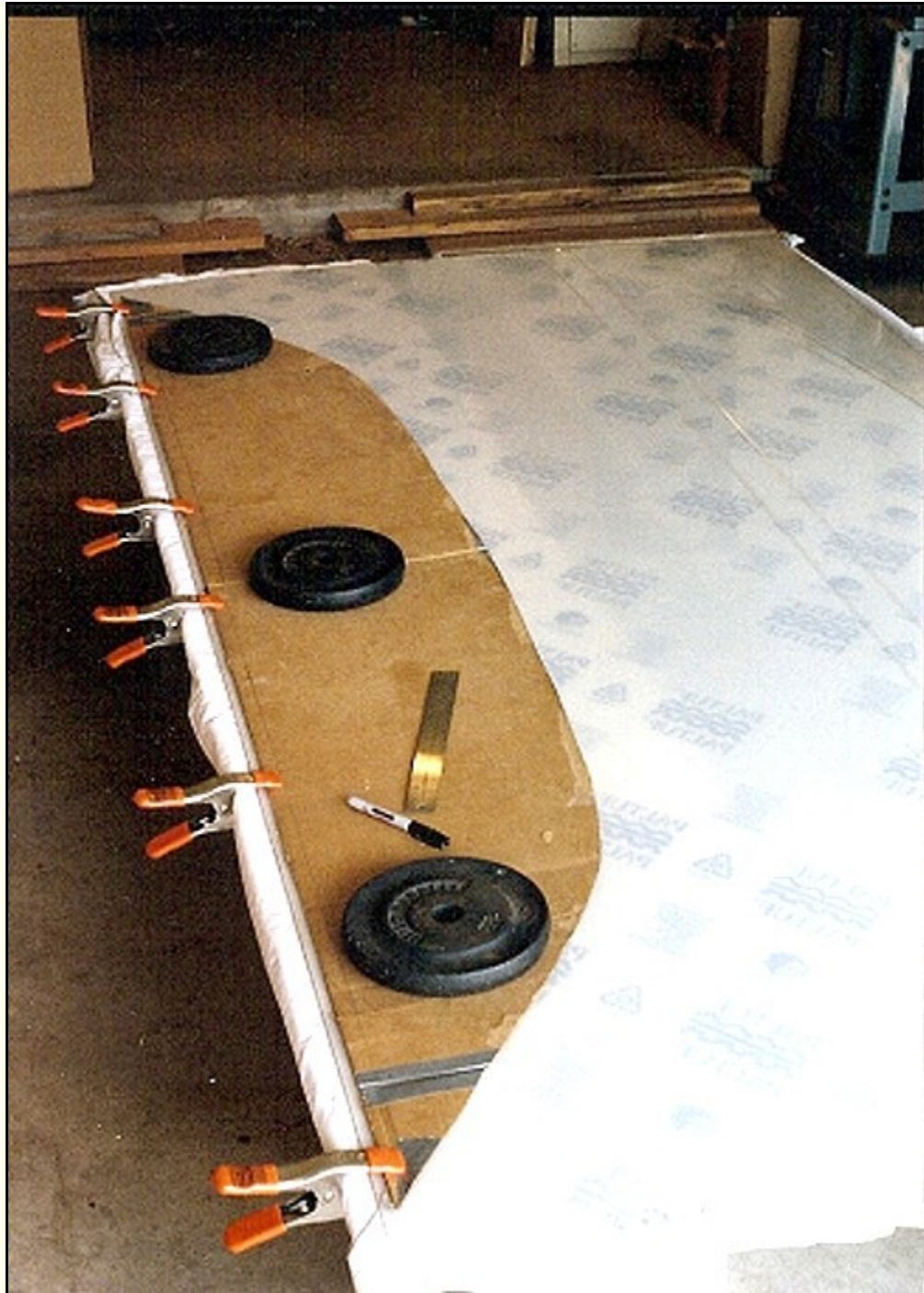
Photos of Process



Cardboard template taped in-place. A light weight solid cardboard would have been better suited for this application but, a large corrugated box is what I happened to have. The steering wheel is in place in this photo because it was at this stage of construction that I was experimenting with various seat heights relative to the steering wheel and also working to determine the appropriate windshield height to give an unobstructed view.



Cardboard template taped in-place. I used a scribe to mark a fair line along the deck edge of the windshield template.



Template clamped and weighted down ready to mark and cut Lexan. I never did use my barbell set for its intended purpose but have used the weights many times in applications similar to this.



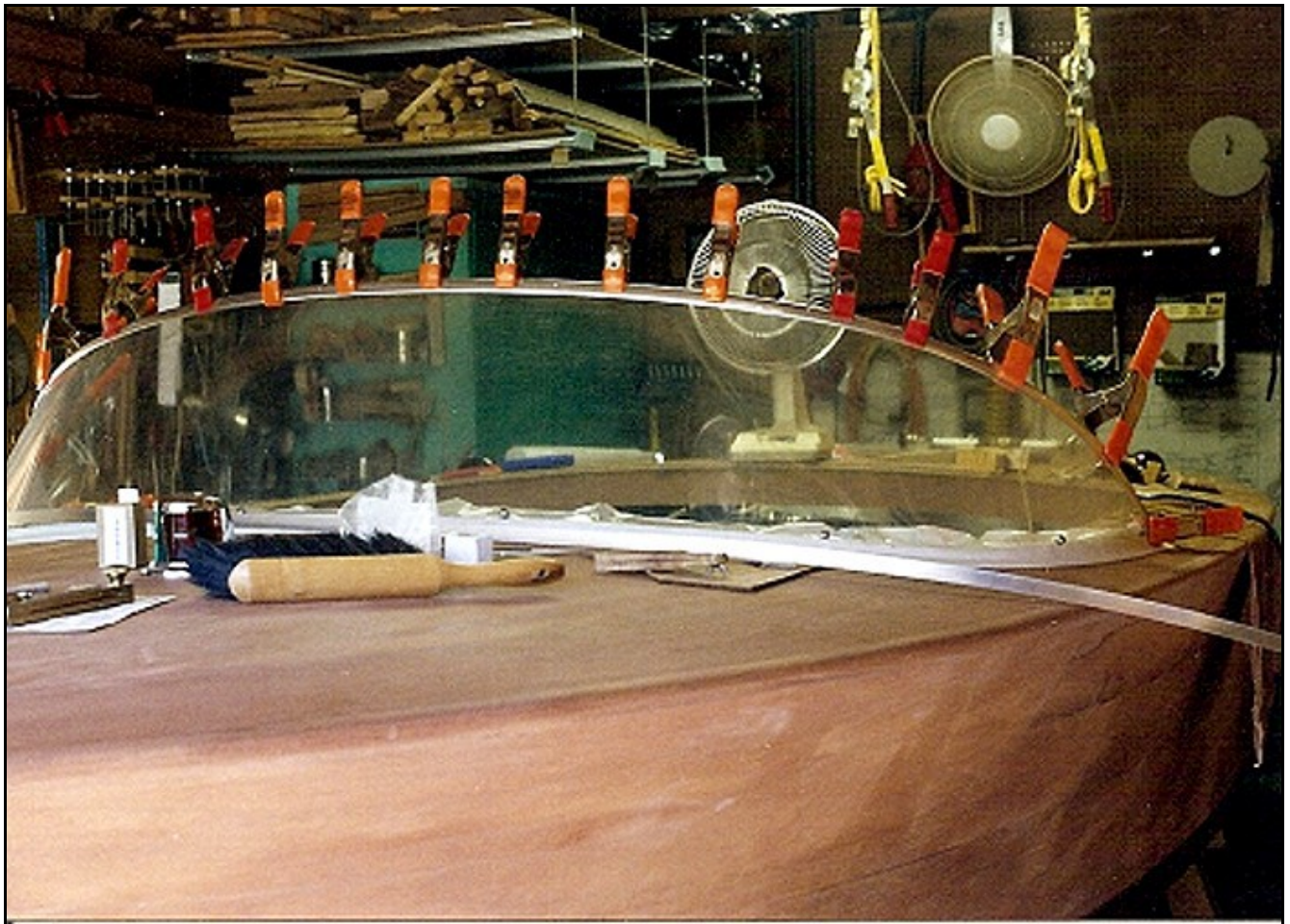
Windshield with protective film still attached. Hold downs and deck channel are in place.



Note: Deck channel ends are not trimmed at this stage.



Windshield with protective film still attached. Hold downs and deck channel are in place.



Fore trim (gunwale) clamped in place. Note: $\frac{3}{4}$ " aft trim (rub rail) has been bent to shape but is not in place and is lying across deck in this photo. You can never have too many clamps.



Side view of finished windshield with deck channel ends trimmed. White protective film has fallen from the Lexan but clear film is still trying to hold on. I left the protective films on as long as possible.



Final view from front.



The finished boat, "Mistress."



Another view.

List of Materials and Sources

Lexan sheet, 4' X 8' X 1/8" or partial sheet if you can purchase it that way (look for a local source).

Hidden Hold-Down Fasteners, 2 packs of 4. (Manufactured by Taylor Made and listed as stock # 1607 in their 2009 on-line catalog under "Hatches and Windshield Accessories;" www.taylormadeproducts.com/catalog/. See illustration below. Sold by various suppliers, online. I can't remember who I bought them from.)

White Twin-Flap Vinyl Deck Channel, 110". (Manufactured by Taylor Made and listed as stock # 826500 in their 2009 on-line catalog under "Hatches and Windshield Accessories;" www.taylormadeproducts.com/catalog/. See illustration below. Sold by various suppliers, online. I can't remember who I bought it from.) The vinyl deck channel and hidden hold-downs are used together to secure the windshield to the deck. The hold-downs are positioned on

the aft side of the windshield.

3/4" aluminum gunwale, 8' length. (Purchased from Brunner Enterprises, West Seneca, New York. Listed on their website, www.brunnerent.com, under "Boat and RV Molding" as stock # M461SL). See illustration below. This molding forms the fore side of the top windshield trim.

3/4" X 1/8" Hollow back aluminum rub rail, 8' length. (Purchased from Brunner Enterprises, West Seneca, New York. Listed on their website, www.brunnerent.com, under "Boat and RV Molding" as stock # M282SL). See illustration below. This molding forms the aft side of the top windshield trim. The two pieces of molding, together with the Lexan sandwiched between them, forms a very clean looking oval shaped windshield trim. Brunner Enterprises lists the molding pieces as 12', however, if you only need 8' or less they will cut it to 8' and it can be shipped UPS rather than by motor carrier. I used several inches less than 8'.

6/32 X 1/2" stainless machine screws, oval head, quantity 8, with flat washers and cap nuts (local source). These secure the two different molding pieces that form the top trim to the Lexan windshield and to each other.

Short length of automotive vacuum hose, 1/4" o.d. and i.d. to fit snugly around #6 machine screws (local source). I cut short pieces of this hose to use as grommets around the #6 machine screws where they passed through the Lexan sheet similarly to those grommets provided with the hidden hold-down fasteners for the same purpose.

Hidden Hold-Down Fasteners



Complete with nuts and rubber grommets.
 Stock No. #1607 (4 per pack)

White Twin-Flap Vinyl Deck Channel

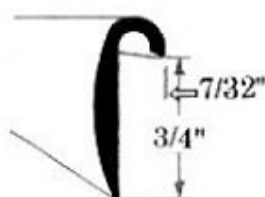
Punched to accomodate hidden fasteners or external angles.

Stock No. Size

#826500 110"



M461SL for 3/4 in.



Stock# M461SL
 Dimensions 3/4 in. Gunwale
 Finish Silver Luster

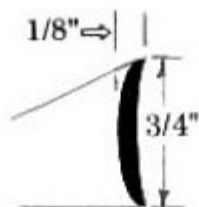
Description:

3/4" Solid aluminum gunwale (Not Pre-Drilled)

Silver luster finish, sold in 12 ft. lengths.

See above link to display all sections for 3/4" Material in a Table View.

M282SL



| | |
|------------|---------------|
| Stock# | M282SL |
| Dimensions | 3/4" x 1/8" |
| Finish | Silver Luster |

Description:

Hollow back solid aluminum rub rail 3/4" x 1/8".

Silver luster finish, sold in 12 ft. lengths.