

## INTO THE RIDE #16

### Maximizing Recumbent Seat Comfort

by Randy Schlitter



#### RANS

*continues to evolve seat design and offers a growing selection. From the original fiberglass hard shell to the Zephyr seat, the quest for lighter, more comfortable and adjustable seats continues.*

#### A Quick Overview

In 1999 the aluminum one-piece seat frame was introduced. With the frame of larger diameter tubing, the seat pan moved forward .4" over the original two-piece frame. The larger crossing tube reduced the amount the seat could tilt by a few degrees. No changes to the seat pan were implemented after the molded plastic unit appeared and surpassed the fiberglass pan. A carbon pan is being used very successfully on several high performance models and the Short Stop seat.



*Top: two piece frame. Bottom: one-piece frame not modified.*

Seat foams have changed as part of our progressive spirit to increase comfort, durability, and reduce weight. The current foam is of higher density and wedge shaped to prevent forward slippage. This type of seat foam has been produced in various colors from light to dark gray and cream to beige.

Seat meshes have also been refined; the most recent is the 2003 seat mesh. The latest version of the seat mesh features crossing and vertical tension straps in place of zip ties and wires. A tough edging of heavy duty Cordura was also added. The new mesh can be tight across the bottom and place the rider more forward. Changing an older seat to new mesh may for some cause pressure differences, but in most cases simply relaxing the tension has returned the seat to previous comfort levels.

#### Maximizing Comfort

#### Check Mesh Tension

I cannot stress how important it is to properly tension the new style mesh. This simple step of adjusting the two bottom vertical straps and the two bottom crossing straps can make a huge impact on the comfort. The earlier mesh was very loose in this area allowing person and foam to slide aft a few tenths of an inch over the new mesh. Tailbone pressure is almost always related to the mesh being too tight. Please note when adjusting the tension, remove the water bottle bolts.

### Beta Testers Wanted

I am testing a modified mesh; it has the bottom opened up to create more space at the lower back and cushion zone. The vertical straps have been moved out 1.5" and are attached to the backside of the mesh. For some this may solve tailbone discomfort. Before we integrate this change into the line up for 2005 we would like a few beta testers. If you think this change to the seat mesh may help with your particular seat discomfort, please return your 2003 mesh for modification. We will modify your mesh and return them promptly. After we get enough feedback, we may change the mesh to this style. If you want to order a new mesh with this feature, you will have to wait until we concluded the test.



*Modified seat on bottom.*

### Beta Testers Wanted Again!

As shown in at the top of this article, the difference in seat pan location is a possible source of comfort problems. This of course was required to keep the seat tilt range about the same. However it did not stop me from thinking "is there a way we could bend that crossing tube into a curve on the existing one-piece seat?" This would allow the seat pan middle back edge to curve down and move aft. So- I went out into the shop and fabricated a hardwood pressing die, stuck die and seat into the big press and presto! A seat with a curved crossing tube emerged. As the photo below shows, the edge of the seat is now equal to or even a little more aft, but please note the middle of the seat is pulled down and aft. With the middle portion of the seat pan pulled down a bit, it will no doubt introduce a whole new set of variables.

What this could do for comfort, well so far I cannot tell, since I am pretty comfortable on all the seats, but I will extend the same beta testing offer to the those who desire such. But it is not without some strings attached:

1. We need only the seat, please remove the cushion, cover, sprint braces, and seat clamp.
2. If you do not have a Rad-Loc seat clamp, this modification will rob you of about 7 degrees of seat tilt. If you need to lean way back to ride, this mod may not be for you.
3. This is a limited offer; I only need about 12 testers.
4. If it turns out this modification is a dream come true in seat comfort, we will offer to modify seat frames and the mesh for a small fee, yet to be determined.



*Forming a curve in the crossing tube will move the seat pan aft as per the two piece design but is also pulls the pan down. The pan will extend aft to within .1" of the two piece design.*

### Compressed Seat Foams

Another reason for excessive tailbone pressure could be compressed foam. Our seat foams can vary as much as 30% in density, the greater density the more compression it can take before feeling bottomed out. If your seat foam bottoms out easily it may not be the foam at fault. It could be your riding style combined with body shape, weight and seat position. Trying an additional layer of closed cell foam sometimes works, but before adding another layer, make sure the seat foam is set properly on the seat pan. This sounds obvious but the foam may or may not have been properly set onto the seat pan. Inspect for this by removing seat cover and observe if the foam is overlapping the edges of the seat pan. Replace cover with foam on seat, making sure the edges stay covered with the foam.

A small shipment of seat foams arrived slightly compressed. They were mistakenly packed into the seat covers, which acted to contain and compress them. As you can see from the photo it is a very small difference, but this could be a factor. If you feel you have compressed foam, send it back for inspection and possible replacement. Hint: if the holes in your foam are not round it could be compressed foam.



*The holes on a compressed cushion will not be round, but the size difference is actually very small.*

### Summary

All these factors introduce many variables and make finding the perfect seat an illusive pursuit. The fact is we have had a greater success with the one-piece seat, since it now largely outnumbers the original two-piece. The actual number of complaints about seat comfort over the past 4 years has been very low; to the point we feel we have a winning design. This conclusion has been supported by the high number of aftermarket sales of our seat to other bike makers and individuals retro fitting our seat to other brands.

I maintain there is no 'design flaw', which seems to be a popular decree for some Internet posters. My only conclusion is no two bodies, or riding styles, are alike. To have brought so much comfort to so many with so few complaints, I maintain our seat is an overwhelming success that has and will continue to evolve toward that holy grail of perfection. It can't be too far from this point since the design has been 'borrowed' by at least one other recumbent bike maker and many other RANS innovations have shown up on the other seat designs. We take it all in stride as doing our part in keeping your bottom happy. Until next month ride safe, ride happy, and know that we are always willing to help.

*INTO THE RIDE*