

## INTO THE RIDE #12

### Designing the Ultimate Racing Recumbent by Randy Schlitter

The response to Into the Ride #11 was outstanding. It demonstrates there is a real hunger in the recumbent riding community for organized racing. If a new organization comes into existence, let us all hope it stays true to the cause, unlike what happened with the UCI. Like it or not the UCI still has the potential to greatly affect the mainstream success of the recumbent bicycle. We have seen in the bike itself mature into a very refined machine, but still lacking in universal acceptance. It is this lack of reception that makes this veteran recumbent maker feel much effort has been in vain. Such staunch resistant to new ideas is usually based on a severe lack of information. Had the founding fathers of UCI really been advocates of cycling this stigma never would exist. However our job is not to fret over the past, instead let's go onto bigger and better things. In our case directly, we will strive to develop the hardware in the hopes of realizing either UCI forming a serious and real respect for recumbents. This respect will manifest itself in the formation and promotion of a recumbent racing class.

The job will not be easy. The recumbent bicycle is not defined by one configuration. At present there is at least two major forms, short and long wheelbase. Each of these split into even more forms and deviations. The variety that attracts amplifies the task of building a racing organization into a seriously complex job.

It goes beyond the simple stating of the law. Just deciding what would be 'legal' to race would be so broad to include all forms that participates would cry foul when a one configuration seemed advantaged over the other. I would say in this case let the chips fall. Let them all race against each other in an open recumbent class. Sure maybe restrict fairings, but even letting them be used could result in some interesting developments. With this free for all concept what does and does not work will some be found out. I would bet over a very short period of time the melting down process would begin. The end result; the bikes start looking identical. It happens in every racing sport, the hardware takes on subtle difference, one configuration reigns. Without some sort of common ground in designs, mass appeal and an effective racing organization will be many times less successful.

It is not clear at this time if we are truly ready. The thought has crossed my mind more than once, that recumbent racing has a long road, pun intended, ahead. There are maybe years of informal racing, sporadic attempts to organize, all along the way to the true ultimate definition of the design.

Meanwhile we are always working on the next generation. To give you a little insight about this process, this is how I break out recumbent design. When considering a new design I work off of 7 major variables:

1. Bottom bracket height
2. Seat height
3. Wheel base
4. Steering system
5. Wheel size
6. Frame material
7. Aerodynamics

The independent and co-dependant relations of all 7 variables determine the success of the bike, provided the goal is clear. If the intent is to race, it could mean a very narrow margin for some variables and wider on others. But even the type of race plays a big part; road racing is the specific event here.

The environment of road racing forces the hand of practicality to the point item 7 is first to slide, then 6 is not far behind. Part of being practical is being affordable, and useable. A fully faired bike might be impressive on flat runs, but hills, curves, crosswinds and weather could turn that advantage away. Cost is important to keep within reason, and frame material plays into this big time. At a reasonable cost there will be more people participating, which accelerates the sport on the whole.

5 is critical to from the start. Wheel size defines the frame geometry. There are strong opinions as to what combination is best, but in the end commonality serves the road racer best. That almost means dual wheel sizes. What size of the wheels ties into 1,2 and 3. I tell my staff when it comes to frame design, the dots are where the crank, seat, bars and wheels are, how we connect them gives our design distinction, or geometry. I purposely refrained from listing frame geometry, it is not one of the seven design variables it *is* the design! That is what 1 to 7 are conspiring to be is a bike frame, from which all else emits. Any manner of variance will occur with the frame, through changes in wheels, seats, bars, and other bolt on items, but the frame locks in the bikes genetics.

6 kills us on choices concerning cost, manufacture ease, and performance. This is no easy place to be, for no perfect material exists. Titanium is touted as nearly the perfect material. I will have to agree it is impressive both in performance and price. No doubt we will use it for future bikes, but only if it has true merit and not market buzz. Our aluminum V2 Formula is so close to the bulls eye that going to Ti will result in a different ride feel, that may or may not justify the added cost, when one

considers the small to no difference in weight. Carbon looks fun, and practical bikes made from it are already on the market, but good old fashion steel, is and most likely will continue to be the mainstay material for frames.

Designing the ultimate recumbent is a process that begins with the statement of the bikes design goal, keeping it obtainable is 100% of being realistic on stating that goal. As we move toward bikes that we hope will bring in larger number of riders, keep in mind that goal will mean trade offs. Just like the common diamond frame road bike has made trade offs in areas like comfort and aerodynamics, so must the road racing recumbent. It is up to us as a collective whole of users and inventors to define what trade-offs are acceptable.

*INTO THE RIDE*