

## INTO THE RIDE #14

### THE FORCE BEHIND THE FORCE 5

*By Randy Schlitter*

Thanks to all for the great number of positive comments on the Force 5. We are busy producing this new bike and hope to be shipping in March. Meanwhile I thought some of you would like a closer look at what makes this bike tick.

#### **BRS**

The chain path, fork, and boom tube all conspired to make the front brake a bit of problem. To use the fine selection of road brakes already on the market was one of the goals. To make it happen we reversed the direction from which the cable enters the brake. The device is tagged BRS for brake reverse stop. With this little jewel you can use a high quality caliper brake, much to the delight of Force 5 frame set owners.



#### **MORE ON BRAKES**

A number of enthusiasts have been pressuring us to provide mounts for disc brakes. At this point we are not going to offer such, since disc brakes are not as light as calipers. I love disc brakes, they are simple to adjust, and very friendly when removing wheels, still the bent on speed aspect of this bike dictates to stay light. Perhaps when we can catch our breath we can explore a touring version of the Force 5, which would have disc brake mounts.

#### **WHEEL SIZES**

The frame is set up to fit both the 650c and 559c. When using the 559c brake reaches and selection will be the limiting factor. Fenders are something the dedicated racer may scoff, but there are those who ride high a performance bike to work everyday, and why not, it gets you there faster with more fun. Several fender sets for 700c can be adapted. We will explore and report on such options at a later date if it becomes an offering.



### THE UNDER 25LB. STEEL BIKE

The standard size wheel base frame weighs in at 5.66 lbs, the all up weight is 25.6 lbs. We can cut that down to 24.9 lbs simply by going to a carbon crank with only 2 chain rings. Dropping the third ring is strictly a personal preference, for my personal bike, it is viewed as extra baggage. Think about it, we used to be happy with 10 speeds, and three of those gears overlapped. The need for more speeds is justified, but getting by with *only* 18 speeds with the right sprocket counts could work for most applications. Saving up to .7 lbs should be worth that. No doubt I will be hot rodding a Force 5 and trying to get this bike down to 23 pounds or less. I like steel frames, they ride nice, don't cost a fortune to build, and with a little more tweaking on the frame and components I think you can have a 24 even 23 pound steel framed bike.

### OPTIMIZED X-SEAMS AND FRAME SIZING

The X-seam range on the Force 5 has only 3" of overlap between sizes. The range was trimmed since the seat height increased moving it forward. Adding to the range on either bike will only increase overlap, and not help keep the shorter rider close to the pavement.

The handling between the 43" and 45" wheelbases will differ. The shorter a bit quicker in steer response, it is slight, and some may not even notice. Reaching the ground comfortably is a subjective matter that can be enhanced with seat choice. On the LE opting for the Zephyr seat may allow a shorter rider to ground reach since the seat can be titled. Adapting the M-5 has been a popular request, but to date we have not decided if we want to tackle the job. Our shortstop seat is another choice for optimizing the frame fit to the rider. So consider such options once you have the chance to sit on and ride the Force 5.

The frame itself is a work of art (*you can get a look at the artists, see below*). Within the elegance is function. The "Y" chain stay offers up weight savings and chain clearance. It is clean, simple, strong, and light.



The load paths are direct allowing thinner wall tubes. Intersecting the main tube with oval seat stays makes for a better load transfer into the wall of the main tube. Again thinner walled tubes work here. The slant cut end on the main tube aligns the loads into the oval strut that completes the triangulation of the frames rear.

At the head tube the forward idler mount projects. This bushing is internally threaded to allow a 8mm bolt to directly attach to the frame sans nut. Both idlers are cantilever and require the 8mm bolt for rigidity. Projecting out of the oval strut is the rear idler mount; again the internally nipped bushing provides support for the power side idler.



#### **A DIFFERENT WAY TO TAKE UP HEADSET PLAY**

Headset play and fork retention are rather unique on the Force 5. For those of you that have done either the hot-rod V-Rex or Rocket conversions you already know how this works. The fork on the Force 5 uses the steer tube as the mount for the riser. To affect this design a clamp collar with take up sleeve is slipped over the steer tube, then the riser goes on with another collar. Now you tighten the bottom collar a little, and the top one needs to be snug and about 1/8" above the bottom collar. Use a wedge or flat screwdriver between the clamps to force the lower collar down and take the play in the headset. It is very simple and low weight. There is no star nut, but what is important the riser clamp is and has always been the critical clamp. You can still steer a bike with some play in the headset, but with a loose riser clamp steering is compromised.

#### **WELDING FORCE FOR THE FORCE 5**

Our team of welders is busy building the Force 5, Stratus, and Fusion. These young men are expert TIG and MIG welders and are just one part of the production muscle we have at RANS. The beauty of home-brew bikes is the flexibility. In production we call it a running change. This helps with evolving the product line. Changes can happen in a time cycle that brings an advantage to both producer and consumer. We thought you would like to meet our bike welding team; they are starting from left top to right: Steve Cathey, Tate Nowlin, Robert Dinkel, T. J. Sorensen, Tony Dopita and Josh Headrick.



Backing our welding team is a modern factory stuffed with CNC machines. One that makes a huge impact on the precision of our frames is our CNC miter machine. It copes the ends of tubes at lighting speed making tubes ready to insert into the welding jigs. The machine was special built for RANS, and until recently was the only one like in the world.



#### SUMMARY

Thanks again for the great feedback, with such input and the talent we have at RANS I am confident you will enjoy the Force 5. RANS is thankful to be part of the recumbent movement. I do not look at other recumbent manufactures as a threat, but a challenge. It is an honor to be in the company of tremendous creative talent, business savvy, and exciting innovations. To see others succeed provides a degree of pride that only a pioneering company such as RANS could know. My comments are heart felt and backed with sound design logic. I do not try to walk the middle ground, and make everybody happy, but I do try

to build a great bike. If I step on a few toes on the way, well maybe you should watch where you put your feet! Until next month stay into the ride, and be safe.

*INTO THE RIDE*