# FREEDOM RYDER

## FREEDOM RYDER FRH-1

While focusing all our energies evolving "body lean steering" for many years, we noticed that the evolution of 'headset' style handcycles wasn't moving forward like we thought it would. We noticed that many of the basic shortcomings of a 'headset' bike weren't being addressed. Over the years we've had our own ideas on how to build a better 'headset' handcycle, but chose never to release them. That is until now. We weren't going to build a 'headset' bike unless we knew we could build it better. So after careful study of these problematic issues we decided it was time to cure them. Just what are these issues? We're glad you asked!

Before we list them we'd like to state our design philosophy: "Simplicity is always the best design." ("Less is more.") From its basic clean frame layout to its quick and easy adjustment and disassembly, there simply isn't another handcycle on the market today that offers as many advantages or innovations as the FRH-1

1) First is the way other headset bikes twist up your legs when making a turn. The sharper the turn, the more they twist up your legs. By careful placement of the rider relative to the headset tube and proper choice of headset angle, we've designed a bike (patent pending) that not only won't twist up your legs no matter how sharp you turn, but our headset bike will turn sharper than any other headset bike out there. "The proof is in the ride".

2) The second is a lack of adjustability in other 'headset' bikes. Over many years of designing 'body lean' handcycles we've noticed that the size of handcyclists varies greatly and therefore the

requirements of those riders varies also. So to properly fit the rider to the handcycle and not require them to 'adapt' to it, you must have a significant amount of adjustability. We've always designed in a wide range of adjustability into our 'body lean' handcycles, and with our new FRH - 1 we were able to design in even more than ever before. Not only do our cranks have a broad range of up and down adjustability, but also forward and back. All this adjustability is accomplished with only (1) 5 mm Allen wrench. Because of the simplicity of the design that adjusts in seconds and offers such a wide range for that perfect fit, we feel the new FRH-1 is a far superior design to other handcycles.

3) Back rest angle. This seems to be an area that handcyclists are very particular about. The FRH -1 has a 'dual pivot telescoping' design that allows not only for a wide range of adjusting the backrest angle, but also allows the entire backrest to be adjusted forward or back

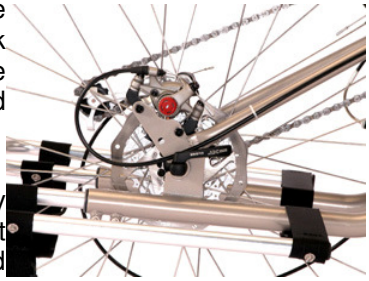


relative to the seat bottom. These adjustments are accomplished in a far simpler manner than other handcycles and require loosening only (1) 5 mm bolt and (2) 1/4" bolts. In addition, both back rest pans as well as the seat bottom are adjustable. Combine the features of #2) with these features and you can configure the FRH-1 to have a comfortable laid back cruising position, an upright 'trunk power' position, or any position in between. These features assure that you get a perfect custom fit that is so important if you plan to spend many enjoyable hours riding your bike.

4) With the advent of shifters and brake levers being mounted on the T-handles some problems have occurred with the cables. We've tested pedal mounted controls before and noticed three things. The first is the most annoying: The way the cables are constantly in your field of vision because they are routed upwards. The second is high maintenance: The short life of the cables before they break. The third is annoying also: The way the cables weight is located above the pedals causing them to be 'off balance' which can lead to wrist fatigue. Our new revolutionary design cures all three of these problems and is so simple. It's never been done before and we have a 'patent pending' on the design. By simply mounting a curved metal housing called a 'noodle' to the controls where the cables attach to them, the cables become routed in a horizontal direction rearward. By doing this the cables now do three things: They are routed completely out of your field of vision even when the cranks are at their top position. They eliminate the constant flopping and rotating of the cable which is the cause of cable breakage. And an interesting side benefit is the pedals become balanced in a 'neutral' position that eliminates wrist fatigue. If you closed your eyes and pedaled the bike you wouldn't know the pedals had cables attached.

5) For the best ergonomic fit we angle the pedal handles in at the top to accommodate the natural position of your hands and wrists. Next we've offset the pedal spindle to the rear of the pedals positioning it 'away' from your fingers. This way you don't have a shaft or tube between your fingers while pedaling. We've further evolved the pedal connection design by mounting the head of the fastening bolt so it is now recessed into the bearing housing and covered by a smooth cap for a very clean look that won't snag your clothing when pedaling.

6) **Every FRH-1 comes from the factory with a disc brake.** The disc brake offers superb stopping power on any hill without the risk of over-heating the rim or blowing tires due to heat build-up at the rim. The brake lever for the disc brake is part of the integrated shifting and braking mechanism on the right pedal.



7) We have taken crank design to a new level. Again, simplicity was our main focus. Many cranks on other bikes used straight tubes coming diagonally off the crank 'BB' shaft. These allowed the pedals to be mounted wider for more power, but several years ago the trend moved the cranks to a more 'low crank trunk power' position where they would contact your legs if the cranks were mounted very low. Several years ago we designed a curved 'L' design that cleared your legs completely when pedaling with the cranks mounted low. Also, we were the first to come up with a simple clean way to attach the crank arms to the crank 'BB' shaft using a simple pinch bolt design and indexing pin. This design had the crank arms coming straight off the end of the 'BB' shaft and was not only cleaner and simpler, but also stronger. Other designs not mounted in this manner had problems with breaking. This is the simplest, and we feel the best design out there. Now with only (1) 5 mm wrench you can remove 'both' crank arms in just seconds. For the crank arms themselves we use light thin wall 4130 Chrome-Moly which not only makes them light but also very stiff. This assures there's no loss of power from flex.

8) Last, but not least. Portability. I've seen many handcyclists transport their handcycles to events out in the weather on trailers, racks or on top of their vehicles. Why? Because disassembling them for transport is such a hassle. Headset designed handcycles use a 'bicycle style headset' which was never designed for quick disassembly. They are complicated and messy because their greasy bearings come loose after taking them apart. We decided that there was a better way and simplicity was the answer! Our new design uses a simple two plate mounting system with a through bolt which holds the front fork assembly to the rear main frame using only (1) bolt. The 'sealed bearings' are located permanently in the 'head tube' of the main frame. This new simple innovative design takes less than a minute to remove the entire front wheel assembly. Combine this with the new quick release crank design, easy removable rear axle and your handcycle is ready for transport in just minutes. From a trip across town, across the state or around the world, no other handcycle makes it this easy or packs in such a small package. All these revolutionary new 'design firsts' listed above along with outstanding performance, adjustability, convenience, value and of course quality combine to create a handcycle like never before. All from the most trusted name in handcycling: ***FREEDOMRYDER***. "The proof is in the ride."

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