RECUMBENT BICYCLES

Ryan Vanguard

Q. What IS that thing ?!?

A. It's called a 'recumbent' bicycle. The word recumbent refers to the reclined seating position — laid back; many enthusiasts have also taken to calling them 'bents'. They usually have two wheels although there are tricycles and even tandem recumbents. Most recumbents are powered by pedaling with your legs, but some are hand powered.

Q. Are they comfortable?

A. They are **extremely** comfortable. Recumbent's seats are larger and you actually sit **in** the seat with full support for your buttocks and back. Seats are generally either a composite shell with foam and covering, or a breathable mesh-covered sling frame. The handlebars are either above the seat at shoulder level, or below the seat at a position where your arms hang down naturally. This combination creates a comfortable ride making long distance riding free from neck and shoulder strain, saddle sores, and wrist pain. Breathing is also more comfortable because you are not hunched over.

Q. Are they difficult to ride?

A. No. It may take you a little time to get used to the feel and handling of the bike, but if you can ride a regular bike, you can probably ride a recumbent. There are variations in handling just as there are in uprights — some are fast, twitchy, racing models and others are smooth, stable, touring models. In less than an hour, most people can be up and riding. Be forewarned though, recumbents use different muscles, so even if you are a very fit upright rider, it will take you time to get up to speed and you may experience difficulty climbing hills until you develop the new muscle groups.

Q. Do they "do" hills?

A. Yes, they do "do" hills. Some people think that because you can't stand on the pedals, you can't ride up hills. In fact, you can do leg presses against the seat — you are not limited by your body weight. Recumbents do often tend to be slower going up hills, but they **can** climb. Depending on how steep a hill you're climbing, you may want a low "granny" gear which will enable you to spin your way to the top. Usually you can keep up with some of the upright riders, and if any time is lost climbing, you will make up for it on the downhills and flat ground. Generally, if your cycling style is to sit and spin, you won't have any trouble climbing hills.

Q. Are they faster?

A. Recumbents **do** hold all of the human-powered speed records. This is because they are aerodynamically superior to conventional bicycles; less frontal area means less wind resistance. The Lightning F-40 currently holds the Race Across America speed record of 5 days and 1 hour. Gardner Martin's Easy Racers Gold Rush, ridden by "Fast Freddie" Markham, was the winner of the Dupont Prize for breaking 65 mph. (It is now on display at the Smithsonian Institute.) You can currently buy production versions of these bicycles. Fairings for street use are common and optional equipment on most commercially built models. They protect you from rain, cold and wind with up to a 30% reduction in drag. The general rule for ideal conditions (reasonably flat terrain), is that a recumbent is about 10% faster than a conventional bike. With a fairing, it can range from 15%-25% faster. With a full body it can be even more, perhaps 40%? Recumbents for street use are not always faster than conventional bicycles. For touring, even recumbents that are not faster in miles per hour can often cover many more miles per day due to the comfortable ride.

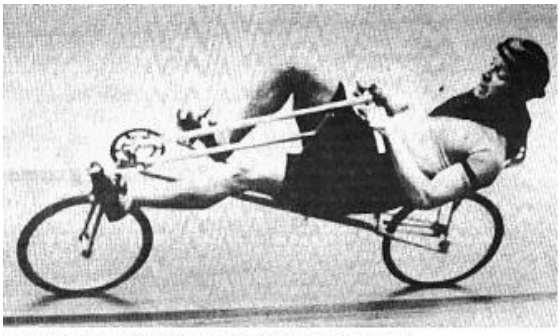
Whether **you** will be faster is completely up to you, your conditioning, the terrain, weather conditions, and the type of recumbent that you ride.

Q. Are recumbents hard to see?

A. Since recumbents are relatively uncommon, they are "noticed"; "visible" is another question. You do sit lower than on a diamond frame bike, but since you are facing up, at about the same height as car drivers, it is easier to make eye contact.

Depending on which recumbent you own, you may want to make yourself a little more visible. You can do that by adding a flag to your bike on an extended rod, by wearing a bright helmet or jacket/vest, and adding additional reflectors or lights.

Forward vision is better from a recumbent, but a rear-view mirror is recommended for a proper rear view.



Francis Faure breaking the world hour record in 1933.
Photo from "Human Power" Vol 11 No 3

Q. Have recumbents been around a while or are they a recent invention?

A. Recumbents have been around since 1839 with the Macmillan Velocipede and the Challand Recumbent.

In 1933 Charles Mochet built a recumbent named the "Velocar". Between 1933 and 1938 pro racer Francois Faure, riding the Velocar, set several speed records for both the mile and kilometer. In Paris on July 7, 1933, Francis Faure broke the 20 year-old hour record of 44.247 km. by going 45.055 km (28 mi).

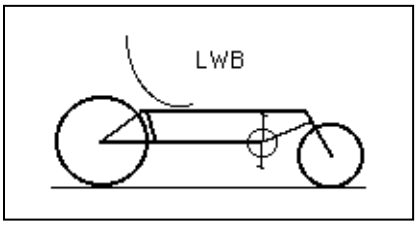
Unfortunately Faure's hour record created a controversy amongst the Union Cycliste Internationale (UCI), the governing body for bicycle races, based on whether the Velocar was a bicycle and whether the time records were legal. In February 1934, the UCI decided against Faure's record and banned all recumbents and aerodynamic devices from racing.

That is the reason why recumbents have not gained popularity in the racing scene, and why they were not mass-produced by bike manufacturers. For over a century, since the introduction of the Rover Safety Cycle, built in England in 1884, the design of the basic diamond frame bicycle has hardly changed.

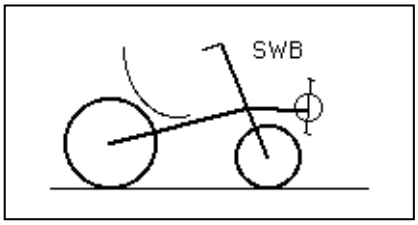
Recumbent bicycles have recently enjoyed a renaissance. In the late 1970's, Prof. David Gordon Wilson of MIT designed the Avatar bicycle, which Dick Ryan helped build; he developed it into the Ryan Vanguard. At about the same time, Gardner Martin started producing Easy Racers. Hypercycle, Rans and Lightning also began selling recumbents by the early 1980's. Today there are many serious recumbent manufacturers.

Q. What are the different styles of recumbents?

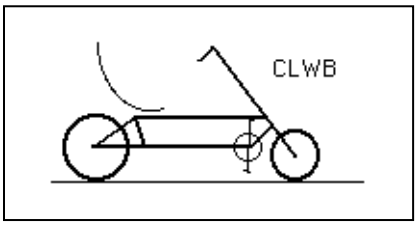
A. The most noticeable difference between the different styles is the length of the bike. There are long wheel base (LWB), short wheel base (SWB), and compact long wheel base bikes (CLWB) sometimes referred to as medium wheel base (MWB).



Long wheelbase bikes (LWB) are 65" - 71". The front wheel is ahead of the (usually low) crankset. Their ride is smooth, graceful, comfortable, fast and stable, but due to their length, low-speed maneuvering takes some practice. They may be bulky to transport but they are incredible to ride. They include world class touring bikes as well as being suited for daily commuting or recreational riding. Examples: Longbikes Slipstream, Easy Racers Gold Rush or Tour Easy, Linear, Rans Stratus or Tailwind, Sun EZ-Sport or Tomahawk.



Short wheelbase bikes (SWB) are 36" - 48". The front wheel is underneath the rider's knees, with the crankset mounted on a boom. They are light, agile, quick handling, and they are easier to transport, store or haul. They offer incredibly lively sports-car performance. Longer SWB models can have some heel / front wheel interference during very low-speed sharp turns. Examples: Lightning P-38, HP Velotechnik Grasshopper, Rans V-Rex, Longbikes Eliminator.



Compact long wheelbase bikes (CLWB) are 49" - 64". These bikes are configured similarly to LWB bikes but have been kept shorter by raising the seat and using smaller wheels. The compact is the recreational, city-bike, fitness-bike of the recumbent world. They are responsive, stable, and with a higher seat, they are more visible in traffic, making great commuters. Taller riders may have a very rearward center of gravity and should seek out compacts with XL size frames. Examples: Rans Wave, Sun EZ-1.

Q. How do you steer it?

A. Generally, recumbents have either 'over-seat steering' (OSS), or 'under-seat steering' (USS). On the over-seat steering 'bents, the handlebars are located at about shoulder height giving them the "chopper" look. On the under-seat steering bikes, they are located next to or just beneath the seat. If you are sitting on a chair right now, let your hands hang loosely at your side; this is where your handlebars would be. Over-seat steering looks more conventional and is therefore sometimes favored by beginners, but USS is really no more difficult to control. You should definitely try out the different types of recumbent bicycles to see which design suits you.

Q. How much do they cost?

A. Recumbents start at around $650 for a basic entry level machine and can go as high as you are willing to pay. Because of their low production volumes, recumbents tend to be more expensive than mass-produced upright bikes. When comparing prices, bear in mind you're buying a custom or very low production bike. Entry level enthusiast models start at $800 - $1200. Expect to pay $1500 - $2000+ for a serious enthusiast machine.

Q. Where can I find out more about recumbents?

A. Here are some sources:

- You can join the local chapter of the *International Human Powered Vehicle Association.* In North America that would be the *HPVA.* **HPVA Membership, PO Box 1307, San Luis Obispo, CA 93406-1307.** Their website is: **www.ihpva.org**
- The IHPVA mailing list is an ongoing discussion about recumbent cycling, running the gamut from trip reports, to bike and equipment comparisons and tips, to homebuilder's hints. To subscribe to the IHPVA mailing list, go to: **www.ihpva.org/mailman/listinfo/**
- *'BentRider Online* has news and reviews of recumbents as well as a message board for discussion and questions. Their website is: **www.bentrideronline.com**
- *Recumbents.com* also has a buyers guide, info on choosing a 'bent, dealer listings, and ads, at **www.recuments.com**
- In western Massachusetts, the bike shop *Basically Bicycles*, sells Rans, HP Velotechnik, Sun, Catrike, Greenspeed (as well as standard bikes). **88 3rd St., Turners Falls, MA 01376**. (413) 863-3556. Their website is: **basicallybicycles.com**
- Email me, Rachmiel Langer, at **rlanger@LangerTCC.com.** (This document is posted at **bike.langerTCC.com**)

[This document was modified from the IHPVA and RCN FAQs by Rachmiel Langer; last updated 8/08.]