



# FREEWHEELER NEWS

Newsletter of the Morris Area Freewheelers Bicycle Club

June 6, 2010 Special Edition

## VELOMOBILES

By John Tetz

### THE OUTCOME

What was learned from all those years of underground development was applied to a vehicle called the **VELOMOBILE**. Derived from a recumbent tricycle base, Velomobiles may very well be the answer to the 21<sup>st</sup> century's need for an alternate transportation type vehicle, that our environment desperately needs.



As I designed and built this vehicle I collected detail construction information and eventually posted it on the internet for anyone in the world to use. That comes from the heritage of the IHPVA - sharing what has been learned (See V6 of this series). This is one of the lightest Velomobiles in the world. What is also so rewarding is doing pioneering work in the 21<sup>st</sup> century out of my own shop.

The design and construction details can be seen here if you're interested.

Trike design:

<http://www.recumbents.com/mars/pages/proj/tetz/TFVM/TFVMp1.html>

Manual on how to build the shell:

<http://www.recumbents.com/mars/pages/proj/tetz/manual/1mold.html>

It generally takes me the good part of a year to design and build, but I typically get 10 years of rewarding use. This vehicle gets used 4 to 5 times a week to do just about all my shopping and running various errands throughout the year, which can add up to 3,000 less miles of automobile use.

The shell, of course, is the prime reason that the riding season can be extended. During the winter I typically use one layer of heavy socks, light long johns, fleece pants, sweater, a light jacket, fleece glove liners (gloves at 20 degrees), a light skull cap (I'm bald) and a helmet. Certainly not overburdened by many layers of bulky clothing. I chuckle sometimes when I hear conventional bikers in March/April say it's riding season again.



**This Cab Bike is the all weather SUV of Velomobiles.**

But the major feature of a trike based Velomobile is no need to balance. Balance may appear to be no big deal, but after running a Velomobile (VM) for 4 plus years this has become high on my list.

When using a vehicle for local alternate transportation you're more likely coming into many intersections and this is where the intense actions are occurring. You're looking for things like pot holes, sand, glass etc, along with adequate space alongside cars traveling in your direction, right turning cars, left turning cars coming towards the intersection, plus checking for crossing traffic. On a two wheeled vehicle anyone of these may force quickly getting at least one foot down. Unclipping one foot before the intersection is a precaution - hopefully it's the correct foot. The tension is high. In a VM you simply put on the brakes and come rolling to a stop – no tension. You can spend more of your time and energy sizing up the intersection situation – alert but relaxed. And on the takeoff, you simply push on the pedals as slow as you want, no tension from a slow speed wobble as you get up to speed. Crawling along at 1 mph is no problem. You can even start out in the wrong gear.

I ride at night quite a bit and have gone down in two wheeled vehicles because of sand, snow or black ice. No such problem in a VM - again a more reassuring ride.

**My conclusion is: having to get the feet down does not make a viable alternate transportation vehicle.**

*FREEWHEELER NEWS*

## COMFORTABLE

Large area seating. Because the legs are not straddling a narrow seat, the seat can be wider including the back support area. No need for padding in pants, no padding in gloves – no gloves.

This is a seat, not a saddle - characteristics of a vehicle.





## GOOD VISABILITY TO OTHER VEHICLES



Receives more respect in traffic, treated more like a vehicle and car drivers often allow me space. I also have to admit it's treated as a curiosity. **"What Is That?"** I hear quite often. With the lack of attention paid by the biking industry and the media, the public is not aware of the kind of developments that have been going on.

## LOWNESS

**"It's so low that you can't be seen."** From my many years of running low bikes and 4 years of almost daily use of the VM, I find this to be **a perception not a fact**. I simply don't have any close calls indicating that lowness may be a problem. 15 years ago when I first began riding truly low bikes (bottom of seat 7 inches off the ground) I got horn honks and drivers saying they can't see me (yet no one ever came close). Those honks have disappeared. Drivers in my area have become accustomed to seeing me. Now I get friendly **I like your vehicle** honks. None of my vehicles have changed – but they have.

The volume and the colors of the Velomobile shell have a lot to do with visibility, more so than an upright bike (especially at night). Yes, there may be conditions where lowness is a disadvantage but in general this has not been a problem for me.

Safety is also a matter of the rider learning typical car movement patterns, particularly at intersections and where to position yourself so drivers can see you. Knowing typical traffic patterns gives you the relaxed but tuned in awareness to be ready for the unusual movement and take evasive action.

Because Velomobiles are a bit wider than a bike, the passing cars generally go further out and around leaving more space rather than less. As any experienced rider will say, being further out in the road is safer plus this alerts a following driver that there is something ahead on the road to go around. Car drivers often see a VM as a vehicle, not for recreation but as transportation, so they may be more tolerant. I hear this tolerance in comments like "no gasoline, no pollution and it's good for the environment."

Hopefully we will eventually get a cycling infrastructure and these space problems will be reduced.

**What is far more dangerous is continuing to use excessive energy and resources from the Earth.**

## LIGHTING

Built in as are directional signals.



Rear view mirrors built in.

## SAFETY IN CRASHES

Crash protection that a conventional bike rider has none.

<http://www.bentrideronline.com/messageboard/showthread.php?t=42238>

I have gone down at fairly high speeds in my streamliner and nothing has happened to me – **no road rash - no going over the handlebars - no face plants**. However if you do push a trike hard enough it could roll over.

## SUSPENSION

Needed on a three wheel vehicle. Hard to miss the pot holes with three wheels.

## RELIABILITY

Most of the gear train is protected.

## CARGO

Excellent for every day shopping. Can't carry as much as a car but as I have said, (V2 of this series) **Nature's rule is you need to exercise at least 4 times a week**. So do your shopping, do some useful work, get some needed exercise and help the environment. This can be a rewarding experience - not felt to be a chore – but as an adventure - A 21<sup>st</sup> century style of life.

## HOT

The most often asked question by bikers “**Is it hot in there?**” First, you’re in the shade - just standing in the sun can be hot. Second, because of the aerodynamics you can be moving along, say around 18 to 20 mph and you’re not working as hard in comparison to a conventional bike (yes those riders get more cooling air but they are also out in the hot sun). Down a slight slope you’re either lightly pedaling or just coasting. When riding with others cyclists I have been asked is it hot in there. I put my arm up in the air showing very little or no sweat - meanwhile they are quite often wet with sweat. My shell has a nose vent, two hand vents and the top of the windshield allows air to go into the helmet. Windshield is adjustable. Where it’s hot is up long grades and stopping for a traffic light.

VMs are heavier so climbing is harder. Commercial VMs are 70 pounds, mine is 43 pounds. Remember these are all season transportation vehicles set up to carry cargo, not a stripped down sport vehicle. Therefore a little help can make this vehicle more practical.

Electric assist systems are becoming a huge business throughout the world. But most E systems are too powerful, therefore heavy – weighing in at an additional 15 to 20 pounds. Here again is that addiction to excessive power (and reluctance to adapt to less). I have developed an ultra light assist system for local use that weighs less than 5 pounds which is designed not for speed but for help when climbing and accelerating. Acceleration power is huge and happens over and over.

<http://www.recumbents.com/wisil/tetz/e-assistmetric/>

## THE PUBLIC

I went to a weekend bike event up in Burlington Vermont, a city where the people are very bike orientated and use them as alternate transportation. As I rode into the center of town people on the sidewalks responded energetically. If they couldn’t come up with a comment, they simply let out screams or yells. Laughter and happiness is most common. Some people would simply stop cold in their tracks – standing there just looking as I went by. More than one teen boy would literally run along the sidewalk yelling and staying even with me. I probably was going 5 mph thru town.

As hip as this town is they are coming from the heritage of a bike concept, so a 21<sup>st</sup> century VM is a uniquely new experience for them.

It’s almost like I was from another planet. Again, a sign of how the biking industry has done a poor job of informing the world of other possibilities.

The number of cell phone photos taken wherever I go is remarkable – an everyday experience. I have seen a solo driver leaning towards the passenger side of the car, steering with one hand, holding up a cell phone camera, glancing at the road while trying to aim the camera on my vehicle - **Tricky**.

Just about every time I run an errand in my town (Succasunna) people stop to ask questions. They most often say they like my little car. The connection to car is good because **Car equals Transportation**. The problem with the term **Bike** in America is it’s basically limited to recreation: sport – toy. And worse – there is a strong **Bike equals Kids** connection that occurs over and over again. It’s heard in instant reactions on the streets, in newspapers articles and in most media.

Many mothers have run up to take a photo and say, “My kids love your vehicle.” Yes my VM is small and cute but I would like to remind them this is an adult vehicle – and they are the ones that need to be interested in it - but the concept of using their own human power is not in their consciousness.

So the term **Bike** has come to limit change. I like the term **Human Powered Vehicle** - HPV - more open to various concepts, designs and uses. A bike with fatter tires, fenders, luggage rack, panniers and lights falls into a HPV category.

Another example of the **Bike equals Kids** connection was when I was asked to participate in a bike show at the Staten Island Museum. But they wanted it to be about kids and bikes. After some amount of time and effort, I convinced them that the show needed to be about encouraging adults to use them for alternate transportation to help our environment. I used 35 feet of the museum’s walls to tell the story I have written in this series by using images surrounded by word groups. Seen from a distance it appeared to be like a mural – but readable upon getting closer.

Staten Island Museum may be the first in the country to tell this unknown story. It was up from April to October 2008.

### INTERESTS

When the price of gas was \$4 I had crowds asking about my vehicle. When the price dropped below \$3 the interest also dropped off. **This indicates that the public is still more concerned with the \$\$\$\$ than the environment.** We need to turn this around.

However, I still get the one’zs, two’zs stopping by each day. If no one stops it actually feels odd.

The fun one comes when an old man comes shuffling up to look. I tell them this is a great old man machine - you need one – it’ll make you young again. They often reply “Oh No” and point to a knee or hip replacement or a heart bypass (some will show the scars). They finish by saying “I’m a lot older than you”. I say “Noooo you’re not”. Turns out they are often in their mid to late 60s - I’m late 70s.

In a way it’s a sad commentary on our life styles. Just think - the costs of those operations would easily pay for a fleet of VMs along with a real reduction in health care costs. Daily exercise does wonders.

This public interest has been continuous over 4 plus years. It’s curious, however, that conventional cyclists seem to be less interested and seldom come over to talk (this could be a whole subject of discussion). At one point so many people stopped to talk that I decided to ask them to sign a notebook. I got dozens of names in a short period of time. I thought I might use this as evidence to show my town counsel members that a bike infrastructure is indeed needed.

I don’t cook so I eat out a lot. This means lots of night riding – good lights and a visible vehicle make this reasonably safe – no close calls. When pulling up to a restaurant with windows, all I see are faces looking out. The restaurant owners/staff treat me like a celebrity. They will come out and look at the vehicle – lots of curiosity – lots of smiles and happiness. The cooks make special meals for me – ones often not on the menu. Typically I sit down and the food comes. Customers often ask questions and a few have even paid for my meals.



With all this activity I look forward to going out in the Velomobile every day – and my body enjoys the exercise. It's not a chore but fun to run errands. Sometime I pull into my driveway and sit in the vehicle for a minute feeling elated. Running errands instead of being stuck on a exercise machine means every trip is different - the trips never get boring.

### SUBURBIA

I feel VMs work better in suburbia. Parking and security issues in cities would be more difficult. You can't carry a VM up a flight of stairs or in a elevator. So bikes are wonderful there.

And because suburbia is far from being green it needs lots of help. Using human power can be instrumental in teaching us to be more sensitive about overall energy use other than human power. Being on or in a HPV on a daily basis and seeing so many 3,000 pound vehicles often carrying one person and being used for 2 to 5 mile local shopping or running errands – this simply does not make environmental sense.

However, there are no Velomobile manufacturers in the States at the moment. Between Europe and Australia (the trike capital of the world) there are about 18 small companies producing VMs. Prices are a bit high but could come down with scale of production. The money I save by not using my car easily pays for the VM in a few years.

The world's urgent environmental needs should not be dependent on waiting for some miraculous scientific breakthrough but for a vast, unprecedented transformation of human behavior. We have applicable alternate transportation technology right now - ranging from conventional **Bikes** (equipped with decent tires, fenders, panniers, lights, etc), **Cargo Bikes** (there are many types), **Recumbents** (also many types), **Streamliners** (very few) and now **Velomobiles** (several types and growing). This won't solve all the environment problems but it is an immediate beginning that can lead us to other possibilities.