NEW DIY Plan—Aurora Delta Racing Trike

By RadicalBrad

The Aurora Delta Racing Trike merges maximum speed with comfort. This unique DIY delta trike breaks new ground with rear suspension and dual disc brakes.

Typically, high performance trikes have been of the tadpole type (two wheels in the front), but the Aurora shatters this stereotype with its ultra low seating position and amazing cornering abilities.

With our easy-to-follow DIY delta trike plans, you can build your own racing delta trike using (Continued on page 2)
“Hi. I really enjoy reading your newsletters about building extreme cycles. One can use their imagination and build anything. This time of financial squeeze has a lot of us dreaming in ways we wouldn’t have done a few years ago. Your newsletters and plans have allowed us all to stretch our dreams in a different direction. Thank You!”  ~Paul

typical bicycle components and steel tubing, and you can do so at a fraction of the cost of an equivalent factory produced trike.

Under seat steering offers complete control over the handling at any speed and places your arms in a comfortable and relaxed position. For rugged terrain, the Aurora is equipped with rear suspension and a low climbing gear range that will smooth out the ride and allow you to climb hills with ease. All of the steering parts used on our DIY racing trike are standard bicycle components.

The Aurora Racing Delta Trike is a low and laid back recumbent trike will perform equally well on both the road and the trail. The low center of gravity allows the Aurora to race into corners at full speed, hugging the road like a performance race car while you keep on pedaling. You can also cheat the wind thanks to the aerodynamic recumbent seating position.

Your home built delta trike will look and perform as good as a factory produced trike, and you get the added bonus of bragging rights, “I built it myself!” Our delta trike plans take you through the entire build process, step-by-step, so even if you have never taken a bicycle apart or welded before, you will be able to follow along and build your own DIY recumbent trike.

There is ample space behind the seat for a cargo box or even a battery pack so that you can install an electric hub motor and rocket up hills with ease. For all-weather commuting, you could even add a fairing or a full body to the Aurora Racing Trike, creating a unique DIY velomobile or a cool streamlined racing machine. There is plenty of room in our trike plan for you to add your own modifications.

The Aurora Trike transmission is fairly simple, using mostly standard bicycle components and a pair of machined parts that adapt the bicycle parts to the rear axle. Even the suspension parts can be salvaged from an ordinary mountain bike, so you can build this amazing DIY trike on a minimal budget.
“I discovered Atomic Zombie (what a wonderful place) where Brad and Kat have created a world of total enjoyment and the best HOW TO I have ever come across and such a great and helpful bunch of folks participating. I ordered their 6 for $36 plan special and got a 1000 pages to read and study, plus a year of back newsletters to study. ~ 1oledog2, Escondido, CA

Hub flange discs now for sale

Our laser cut Hub Flange Discs will make it easier for you to build your own delta trike wheels and save you time on your project. This Hub Flange Disc is made with 24 spoke holes so that you can build wheels directly onto any 3/4” axle using rims with 48 spokes.

The Hub Flange Discs are made of steel and are approximately 1/8 inch thick as required by the plans. Spoke holes are 7/64” in diameter so that standard bicycles spokes can be used.

Our Hub Flange Discs come in several varieties with various spoke hole counts and axle hole diameters. Each of our DIY plans offer a recommended axle size and spoke count, but you can certainly change this to suit your design needs or parts availability. For instance, the Aurora Trike can be built using rims with 36 spokes rather than 48 spokes, or the DeltaWolf can be made using a 3/4 inch axle rather than a 5/8 inch axle. Please make sure that you order the correct Hub Flange Disc size for your project.

To keep costs to a minimum, our Hub Flange Discs are laser cut from flat sheet metal. Each disc will have a small imperfection on the outer edge and inner edge where the laser started cutting out the disc. There is also a mill scale on the surface of the metal that will need to be removed using sandpaper or a sanding disc. Neither of these imperfections will compromise the strength of the disc, and once they are built onto your hubs and painted, the imperfections will be unnoticeable.

The surfaces of the Hub Flange Discs are coated with a mill scale at the factory to help protect

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the metal from oxidation. This coating easily be removed using a sanding disc to prepare the part for painting. The laser cut edges are also somewhat sharp, so they need to be smoothed off using the sanding disc by running it lightly around the edge once.

Once the mill scale has been removed from the Hub Flange Discs, the spoke holes will need to be beveled slightly to remove the sharp edges around the holes. This is done so that the spoke exiting the flange is not cut by the sharp edges of the hole. To bevel the spoke holes, use a 3/16 inch drill bit and push lightly into the hole until a small bevel is made.

The beveled spoke holes are shown here after running pressing lightly with the 3/16 inch drill bit to remove the sharp edges. The Hub Flange Disc is now ready to be welded to your delta trike axle.

Remember, our Hub Flange Discs are sold as a set of four matching discs, and there are several versions available, so please choose the correct number of spoke holes and axle diameter for your project. These discs are manufactured to keep costs to a minimum, so you will need to bevel the spoke holes and prep the surface for painting, an operation that will only take a few minutes per disc.

All of our DIY Delta Trike Plans make use of these Hub Flange Discs, which allow you to lace a rim directly to the rear axle. By integrating the flanges directly onto the axles, you’ll save some money instead of needing to have complex and expensive machined hub parts made. Our trike plans also include instructions on how to make these parts from scratch, as well as a drawing that can be sent to a machine shop in case you want to make your own hub flanges.

Our goal is to offer parts that save you both time and money when building your own DIY bike or trike project. For more details and to order, visit the AtomicZombie store.
Hi From Sutton in Ashfield

Hello people. My name is Nitty (real name Ken, but more people actually know me as Nitty).

I am 49, semi-retired from Sutton in Ashfield, Nottinghamshire.

I came across this site whilst searching for ideas to design & build my own recumbent transporter, using only available parts & no welding. I have settled on a FWD FW steer based around a standard 'ladies' frame but with side-car cargo area to shift the weight forward. Anyway, not started yet so more as I go along.

I hope I am in the right place and not stepping on anyone's toes as I have not bought any plans, just got it all in my head at moment.

P.S. I do listen to free advice/information no matter how insignificant you may think it is.

Thank you, Nitty.


Old Zombie finally found home—from NWI-Chicago

Hello all.. Just bought 6 plans and should be banging out some real ugly stuff soon. Can't be too pretty as I am a Zombie and all.

Cheers and wish me luck. Been welding other contraptions for years.

Might be needing these as well soon.. Just saying hello.

More than 30 informative bike building tutorials, plus videos. Absolutely free!

Topics include:

- Simple SWB Recumbent
- Wheel Part Salvaging
- Basic Fishmouth Cutting
- Arc Welding Basics
- World Record SkyCycle
- Cranks And Pedals
- Bottom Brackets
- Derailleurs
- Rake and Trail
- Brakes
- Head Tubes
- Tall Bikes
- Bike Chains
- Bicycle Autopsy
- Granny’s Nightmare Chopper
- Goosenecks
- Freewheels
- Mountain Bike Tandem
- Bearings
- Underseat Steering for DeltaWolf

AZTV

4130 chromoly frame welded with solar power!

Go Solar!

Full suspension delta trike with solar canopy and 1 hp electric motor. Frame all welded with solar power!

You can upload your own bike pictures to the gallery! Go to the AZ forum and join us.

6 for $36 Summertime Special!
Buy 6 plans and save over $70! Choose from over 32 plans.
Atomic Zombie manufactured parts for your bike projects

By Brad Graham, AtomicZombie.com

We ship orders on Wednesdays. The next batch of adapters is on order and expected to arrive in two weeks. We will be adding more to our inventory in response to the demand, including spokes, bearings, chains, and many other common bicycle parts that are used on every project.

Here is a description of the parts we now have for sale and which plans they belong to.

Some of the Delta Trike parts we offer:

**The disc brake axle adapter** will allow you to install a standard bicycle disc brake onto a 5/8 or 3/4 inch diameter steel axle. The part will be drilled and tapped for standard disc brake rotor mounting and will include a set screw for connection to the axle.

**The threaded freewheel axle adapter** will allow a Shimano type screw-on freewheel to be affixed to a 5/8 or 3/4 inch axle.

Delta Trike Axle Adapters made for 3/4 inch cold rolled steel shaft

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“Just a quick note to say how much I’m enjoying the Warrior plan. Lots to read and learn, but I’m motivated to get started!”

~ Stanley Y., Australia

September 17, 2012

Projects that require axle adapters and flanges.

diameter steel axle. This part will include a set screw for connection to the axle.

The Hub flange set will allow a wheel to be laced directly to a 5/8 or 3/4 inch diameter steel axle. These steel parts are sold in pairs and will include 18 or 24 drilled spoke holes for 36 or 48 hole rims.

All of our DIY trike and quadcycle plans use one or more of these parts, and you certainly use these parts to design your own unique vehicles based on our plans or from scratch. Having these parts available means that you can shave days off your build time or possibly weeks if you have to wait in line at the machine shop for your parts to be made.

Because we will be making these in quantities, we can manufacture them for less than what a machine shop would charge for a single unit. All of our parts are tested to fit on the axle and freewheel, so there will be no guesswork or problems when it comes time to install them.

Our freewheel and brake adapter will allow standard bicycle components to be adapted to any 5/8 or 3/4 axle so that transmission and braking can be included. A threaded freewheel will screw on to the adapter and a standard

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bicycle disc brake rotor will bolt onto the included flange.

With these two components mounted to the axle, you can use a standard bicycle rear derailleur to add speeds and a standard mechanical bicycle disc brake to offer solid stopping power.

All of our plans that include two rear wheels make use of one or more of these freewheel and disc brake adapters. With our freewheel and disc brake adapters, you can add a pedal transmission to practically anything with an axle.

All of our future delta trike and quad plans will use 3/4 inch axles. If you are interested in purchasing any of the parts or need more detailed information, please visit AtomicZombie.com.

We are working with shipping companies to offer parts for sale outside of North America. Please be patient. We are trying our best to find affordable options for our international bike building friends. Stay tuned to the forum, newsletter, Facebook and AZ site for announcements on when the hub flanges will be available for sale in late August. All of our custom parts are proudly made in North America and designed to fit as advertised.

Currently we only ship to Canada and USA, but can send worldwide for larger orders. Contact us for more info.

You may purchase parts that are currently out of stock, but your entire order will be shipped at a later date, when all parts are back in stock (usually 2-3 weeks). Orders are shipped every Wednesday.
“Greetings to you both. So much to choose from! I doubt I’ll build six bikes, but that special is a great deal.”

~ Warren J., Essex, Great Britain

One Triangle Bike

Bike design simplified by deleting front triangle. Short, compact, extended underseat handlebars.

24” donor components. A steeper steering angle will improve maneuverability.

Working in the field

Being in the middle of a move from the city to the country, we find ourselves living in a camper and building a recumbent bike from an old construction trailer!

My Timber Wolf Trike, with a few modifications.

When I see an adult on a bicycle, I do not despair for the future of the human race. ~ H.G. Wells

You can upload your own bike pictures to the gallery! Go to the AZ forum and join us.

6 for $36 Summertime Special!
Buy 6 plans and save over $70! Choose from over 32 plans.
From Brazil

Dude we've been watching for years here in Brazil - we say you're the man!! You've inspired me to make a recumbent trike. Recumbent bikes in Brazil are still very new. I admire you very much and your videos on YouTube. Hugs!

Swing arm bottom bracket size

I'm just starting on the StreetFox. I have about 6 donor bikes. 2 are swing arm MTN bikes. From the plans I see the bottom bracket (BB) stays with the rear suspension and is not used.

Another one then is used up front for the crank. Problem is the diameter of the BB on my two suspension bikes are smaller than all the other bikes I have, even a little kiddie bike. I purchased a mongoose full suspension MTN bike with 21sp Shimano to get all the drive stuff from. Haven't taken it apart yet but I'm sure the crank/bearings etc from the new bike won't fit the larger diameter BBs which seem more common. I do have another mountain bike with a three chainring setup, but would rather use the new stuff. More >>


Dual rear trike on sand?

I ordered 6 plans a while ago hoping to chose one that was "THE" one. You make choosing very hard to do. It seems each one is better, in some way, than the one before it. I think I have it narrowed down to a dual rear wheel trike. I live in Florida a very short ride from the beach and think cruising on the beach would be a very fun thing to do. More >>

http://forum.atomiczombie.com/showthread.php/7010-Dual-rear-trike-on-sand

You can upload your own bike pictures to the gallery! Go to the AZ forum and join us.
Welder choice

Hi everyone. Looking to buy a welder for bicycle hacking (strictly hobby). Used to weld regularly but not for many years now. Any suggestions, tips?


Sturmey Archer Drum hub w/12 mm axle

My velomobile has these Sturmey Archer XL-SD hubs. I have owned it for 4½ years and done about 3,200 km - daily use in all weathers. I have used it hard enough to have to replace the front rims and the rear hub, but the front hubs are still original and work fine. I haven’t even had to replace the brake shoes. I weigh around 95 kg and the velo is around 32-33 kg. Typical speed is 35-40 kmh - although obviously less in corners. Road conditions are bumpy in places but I avoid any serious potholes. http://forum.atomiczombie.com/showthread.php/6994-Sturmey-Archer-Drum-hub-w-12-mm-axel

Spoke hole guide for Gladiator

So I purchased the plans for the Gladiator chopper. The plans adeptly explain that a typical 20" rim will be a good guide for determining where to drill for nipple holes totaling for 28 spokes.

However the 20" BMX rims I have found (and almost all others for that matter) seem to hold 36 spokes per wheel. So, having used a 36 spoke rim to mark and drill holes in my rim, what should the flanges look like with 36 holes instead of the 28 demonstrated in the plans, considering geometry and 360 degrees and space between each hole in the flange?


"Love the fact we can upload our own pictures. That’s a nice feature.”

~ Don L., Michigan

September 17, 2012
“I love the Aurora Delta Trike. The rear suspension is great. I guess I’d better order more steel. It’s going to be a busy autumn.”

~ Andy T., Australia