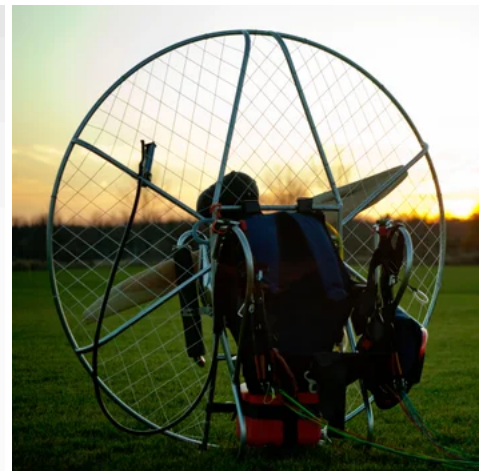


Build and Fly a Paramotor - Safely and Inexpensively

By Sky-Monkey in WorkshopMetalworking



Introduction: Build and Fly a Paramotor - Safely and Inexpensively



Live the dream:

Ever since I was a little kid, I dreamed of flying. My first attempt around age 8, resembled an oversized kite made of tree branches and black plastic. Needless to say It was an unsuccessful attempt at flight, and fortunately for me, the hills near where I grew up weren't very steep. Since then my desire to fly has only

grown stronger, and I have gained the knowledge and saved up enough money to enter the world of powered paragliding (ppg).

To me there is no other feeling like flying. It is the most natural and mind freeing sensation there is. I do enjoy flying in planes (both large and small), but the openness and simplicity of flying a paramotor is second to none. I look forward to new and future forms of flying that allow for even greater freedom, but for now, ppg is pretty darn good.

If nothing else, I think you will enjoy watching the video - even if you have no desire to fly, build a "flying machine", or read an instructable about building a flying machine.

[Build and Fly a Paramotor \(safely and for cheap\)](#) from [Sky-Monkey](#) on [Vimeo](#).

Whats the Point?

Paramotoring is primarily done for recreation, however there are a number of practical uses for paramotors. Search and rescue teams have used paramotors for getting into remote areas and flying low to the ground in searches, the Florida Police department utilizes paramotors for beach patrol, they are used for aerial photography, and videography, they are used for advertising, and for entertaining spectators among others things.

How much and How difficult?

Since buying a rather expensive paramotor and taking a number of lessons, I have come to realize how simple paramotors really are. They may appear complicated at first glance, but they are really just a combination of multiple simple pieces that work together.

I built the Frame, Harness, Throttle, Reserve Parachute deployment bag, and Fuel system in under two weeks of evenings and weekends while working a full-time job.

Excluding the engine, propellor, reserve parachute, and parglider (the stuff most people cant make themselves), the project cost under \$200 USD. The things I didn't build range broadly based on new/used from \$2000 - \$5000+ USD

This instructable is meant to be an overview of how I went about making my own paramotor, and to hopefully give others some ideas and inspiration for creating their own (or even just to get people interested in and aware of the sport). A good deal of experience with similar construction techniques is highly recommended as is a good deal of time and patience. Cost is highly variable, however, for this demonstration, I am attempting to do everything for the least possible cost.

I constantly find myself printing out templates from my computer, spray mounting them to plastic, pressboard, foam, and other materials and cutting everything out by hand. I would also love to have something that would cut fabrics for some of the composite and textile projects that I work on. Beyond that, I

enjoy making stencils for spraying t-shirts, and graphics onto the stuff I build. Because of this, I would like to be entered into the 4th Epilog laser contest. I am hopeful that this project is viewed by others with as much enthusiasm as I have for making stuff, and for personal flight.

Step 1: Safety and Training



Whats Safety?

The first and most important thing when considering getting involved in the sport is training. It doesn't matter how safe your equipment is, proper training makes all the difference in the world.

That being said, paramotoring is arguably the safest current form of recreational aviation out there.

Nevertheless, **I do not recommend attempting to enter this sport without training.** If you can find an instructor who offers training by the lesson vs. a lump fee – Training can be quite inexpensive for those who are dedicated and willing to rehearse what is taught between lessons. Aside from the obvious safety risks associated with not getting proper training – people have scared themselves out of wanting to fly because of bad attempts to “self train.”

Some people never go back to it as a result of bad experiences.

So, bottom line: **GET PROPER TRAINING!**

My best attempt at a legal disclaimer:

The reader of this instructable should be aware that flying of any type can be very dangerous to the pilot and anyone else nearby. They should also be aware that the material published here is by no means a substitute for proper training or paramotor safety education. Before attempting to replicate any portion of the following project, a thorough understanding of the sport, its fundamental principles, and the equipment necessary to participate in such a sport should be properly obtained and exercised. The author of this article is in no way responsible for the use or interpretation of the following information. The information is intended only as documentation of the authors work, and in no way suggests that others will have similar outcomes by attempting to replicate said work.

Step 2: Tools/Equipment and Materials Required



Materials for what I built:

6 x 10' lengths of 1/2" EMT conduit (6 x \$2.18 = \$13.08 - Lowes, most hardware stores)

Filler rod / brazing rod - dependent upon method (~\$3.00/lb x 2lbs = \$6.00 - Welding supply Store)

Braided Mason's line (\$3.47 - Lowes, most hardware stores)

Seat belt buckles (\$0 - \$20 - make friends with a local junk yard)

Seat belt webbing (\$0 - \$10 - make friends with a local junk yard)
Outdoor nylon fabric (\$4-\$8/yard x 3yards = \$12-\$24 - Jo-ann fabrics (check the flat folds section for good deals), Walmart, or other fabric stores)
Bonded Nylon thread - (\$5 - a 1/2 lb spool will give you plenty to spare - fabric stores or ebay)
Bicycle brake lever, cable and housing (\$0 - \$5 junkyard, yard sale,)
Momentary button (\$1 - electronics stores, online)
22 awg or larger wire for kill switch (\$1 - scrounge from anywhere)
Small square of 3/4" plywood for seat board (\$5 - hardware store, carpenter scrap)
Fuel tank (\$10 - \$12 ~2 gallon capacity [less than 5 gallons to be Federal Aircraft Regulation 103 legal])
Fuel hose (\$1-\$2/foot x 4 feet - \$4 - \$8 - auto parts stores, small engine shops, online)
Fuel Filter (\$1-\$2 -auto parts stores, small engine shops, online)
Fuel Primer Bulb (\$4-\$8 -auto parts stores, small engine shops, online)

Cost of the stuff I don't recommend trying to make:

Propellor (\$150 -\$250 for wood - \$400+ for Carbon)
Engine (\$300 - \$2000 [the greatest price variable - details discussed in own section])
Reserve Parachute (\$300 - \$700)
Paraglider (\$500 - \$3500)

Tools:

Tubing roller (only used briefly - I recommend using someone else's if you don't have one)
Tubing bender
Metal cutting and grinding tool
Means of brazing or welding tubing
Drill and various drill bits
Sewing Machine with heavy needle (some people refer to them as "jean needles")

Step 3: Kiting / Ground Handling



The most basic and also the most important skill required to fly a paramotor is kiting. Much like flying a kite, "kiting" is the act of controlling a glider (typically from the ground) - It is also known as "ground handling"

*Often in PPG, the words **Kite, Glider, Wing, Sail, Chute**, and others are often used interchangeably by different people, and all refer to the Paraglider (the oval shaped fabric parachute above the pilot's head)

Powered parachutes or "PPC's" are typically more squarely shaped wings flown with a "trike" (a three wheeled rolling chassis) and often have a very large surface area - and thus have a relatively slow airspeed - modern paragliders have evolved from this basic idea, however are much more collapse resistant,

more maneuverable, and can travel at higher speeds

Kiting is relatively safe, however the basic principles are best learned first from a proper instructor before attempting to kite by ones self. An unskilled pilot attempting to kite without a competent instructor risks being caught off guard by wind gusts and put into dangerous situations

After a first lesson or two in kiting, lots of practice responding to the wing and changes in the wind will help build the skill necessary to be a great pilot.

Never try kiting in wind speeds above your skill level, and only practice in a large open area - never near a large hill or in thermic air

Step 4: Research



Despite the overall lack of awareness and popularity of paramotoring in the US, Paramotors have been around for a good twenty or so years - and a lot of progress has been made in that amount of time. So **learn from what others have learned and save yourself a lot of work**

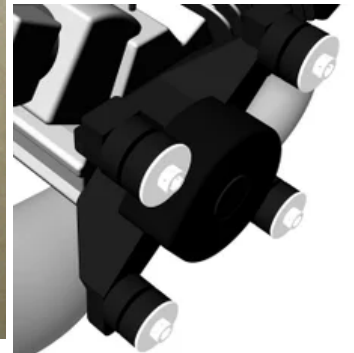
I don't recommend building a setup yourself if you do not have sufficient experience with the basics of flying a paramotor, or if you aren't reasonably skilled in making stuff that your life is dependant upon.

I also know however, that there are a number of people who attempt to get into the sport in just this manor I warn against

I believe that the safest way to enter this sport is to buy new, and up to date equipment, however, that is not always an option for everyone. I feel that this project proves that it is possible to build your own equipment safely, and on a budget - and in some cases I believe that this approach is safer than purchasing many forms of outdated used equipment.

If you are determined to build your own equipment, my best advice is to do lots of research. There is a good amount of information available online, which is a good place to start, but seeing the equipment in person is far more valuable. Taking some trips to the nearest flight park or training facility will give you a far better grasp on why and how things are made the way that they are. Along with what advancements have recently come about, and why things are set-up the way they are.

Step 5: Engine and Engine Mounting



The bolt pattern and relationship between prop center and bolt pattern is different for different motors- before creating a frame and engine mounts, you will need a motor to fit to the frame.

Two stroke vs Four stroke:

The vast majority of engines purpose built for paramotoring are two-strokes. There are a few companies that make four-strokes for the sport, however they typically weight more compared to an equally powered two stroke.

Displacement:

Paramotor engines vary in displacement from around 50 - 80cc on the small end and 200 - 250cc on the large end.

Bigger is better?

Everything is a trade-off. The ultimate factor with something you want to fly is the strength to weight ratio. More importantly - It is not only the power to weight ratio of the paramotor itself, but also compared to the pilot's weight. For a lighter pilot, a smaller engine will work fine, for a heavier pilot, a larger engine may be required.

Price:

Engines can be found used, for less money. However, certain new engines are not terribly expensive either. Robert Shaw and his "egg" project put together a modified honda 200cc generator motor for about \$1550USD or an imported RedHead 180cc engine which is designed specifically for paramotoring can be bought for \$1750USD.

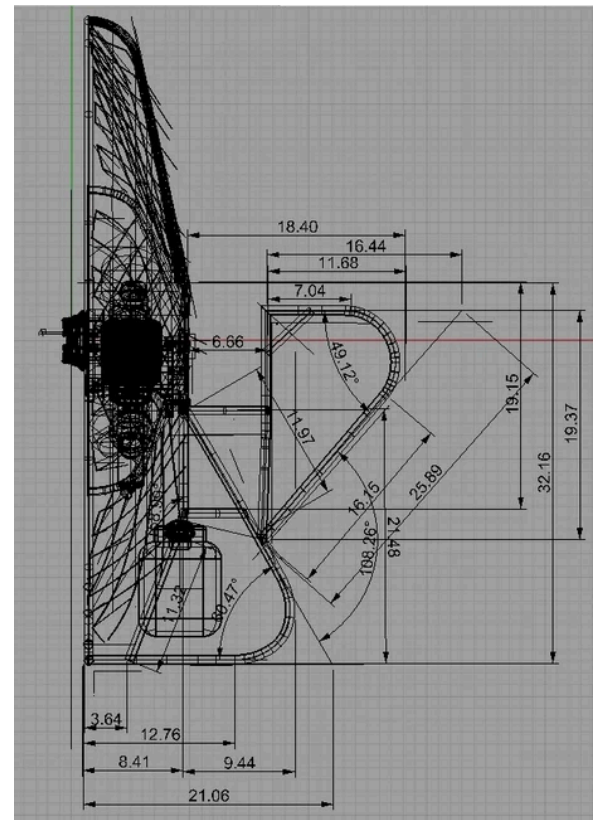
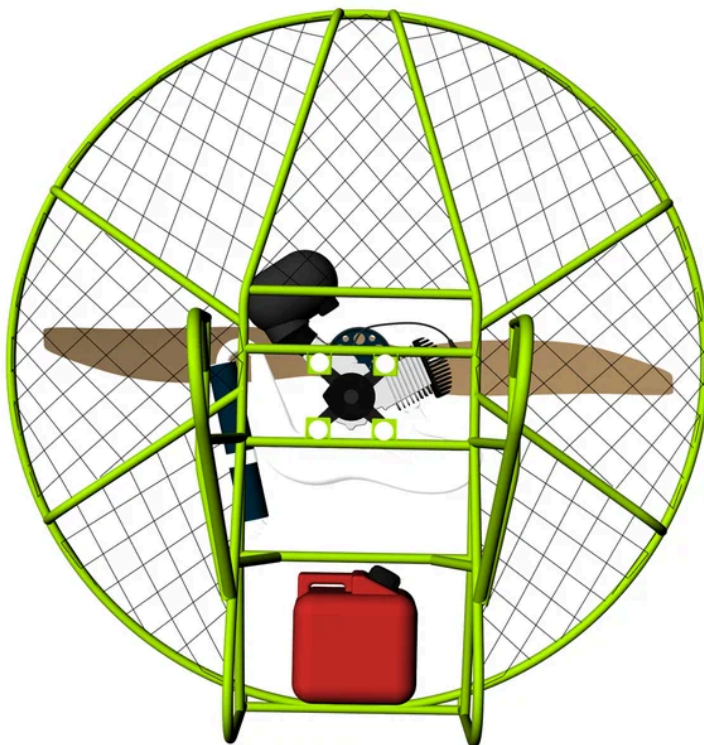
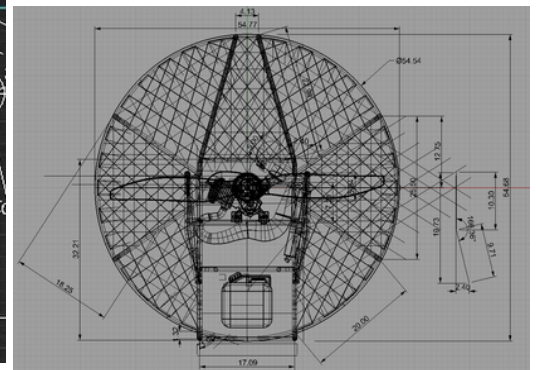
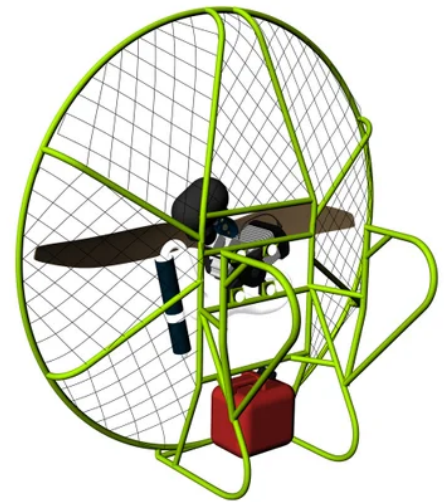
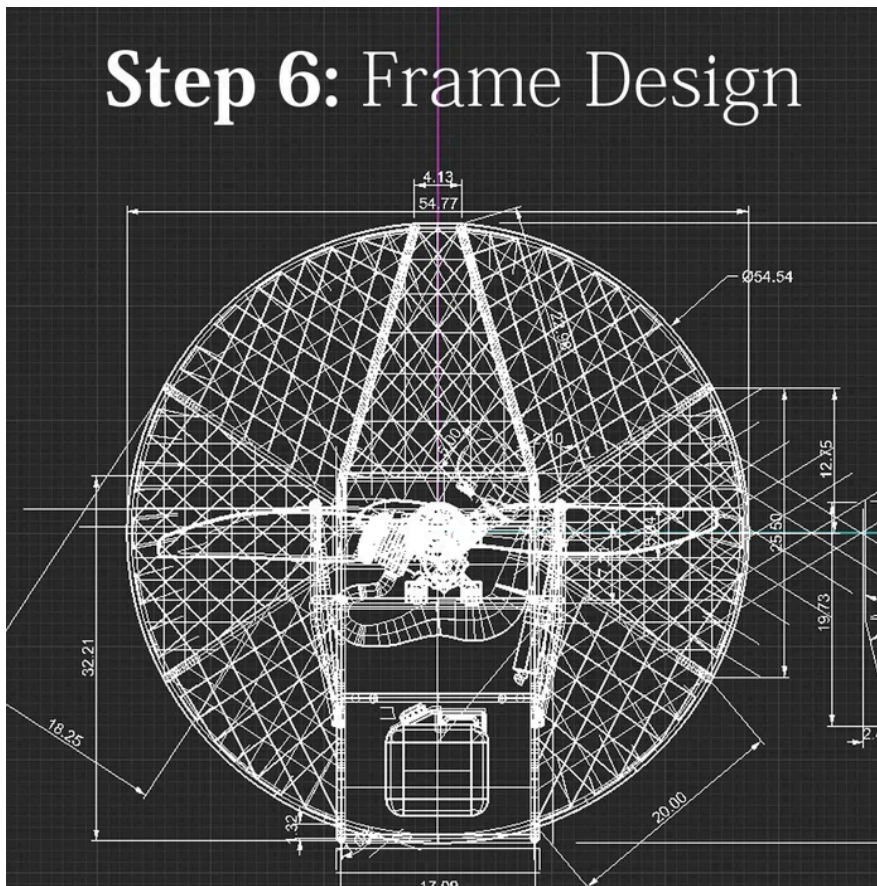
Vibration Isolation:

The engines are mounted to the frame using rubber isolators to help minimize the vibration felt from the motor.

Engine Dimensions:

Beyond the tradeoff of power to weight, physical dimensions are another important consideration for engines. The greater the distance between the prop and the pilots back, the larger the cage needs to be to protect the prop. Also, the larger the engine, (front to back) the more leverage the weight has hanging further behind your back.

Step 6: Frame Design



There are countless paramotor designs with varying levels of safety and functionality. Each has its own strengths and weaknesses in the areas of **power, weight, safety, compactness, durability**, and the ever important: **cost**.

Cost is of great importance in this example. Most people who try to get into the sport by building their own setup are primarily doing so to save cost. If money is not a factor, then I highly recommend purchasing your first set of equipment. My goal for this frame was to build it almost entirely from materials that can be gotten

at local hardware stores, from junkyards, and/or ordered inexpensively online.

Safety is of great importance to me, as I value my life, and I don't yet have the experience yet to experiment with dangerous equipment. I hope that this is also the case for anyone else looking to enter the sport.

Some claim that there is a trade-off for cost and safety (Inexpensive equipment not being safe) - I however disagree with that - If done properly, you can make less expensive equipment equally safe as expensive equipment. It will weigh more, as it will be made of less expensive materials, but it can still be done safely.

Weight is typically indirectly proportionate to cost (for many high-performance things) - to reduce weight, you are typically looking at an increase in cost (look at high end bicycles - the more carbon fiber parts, the lighter and more expensive)

I will try to point out the areas where cost can be cut for the least possible increases in cost. Durability is also of high importance, as I know that at my level and the level which most people start out at, mistakes are made, and I want the frame to be able to withstand some bumps and bruises.

Compactness is important for people with little storage space, and/or a small vehicle without a hitch. For me, I almost never disassemble my frame, thus I will be building a single piece frame. (By cutting a frame apart so it can be disassembled - you are typically either adding weight, reducing the overall rigidity, adding cost, or a combination of the three.

Power comes from the engine and propeller. Effective power is a result of additional factors like aerodynamics. Starting out, it is typically best to learn paramotoring in a consistent wind of around 6-10 mph. With less wind, and with smaller paragliders, more power is necessary. It is always nice to have more power, but it is also often a trade-off for cost and weight.

So after doing a good amount of research, I started sketching, and then 3d modeling some ideas of what I wanted to build in the computer. It's good to have an existing paramotor to reference as you create your design, so that you aren't constantly "re-inventing" everything.

Learn from what has already been learned by others, and you will save yourself a lot of time and experimenting.

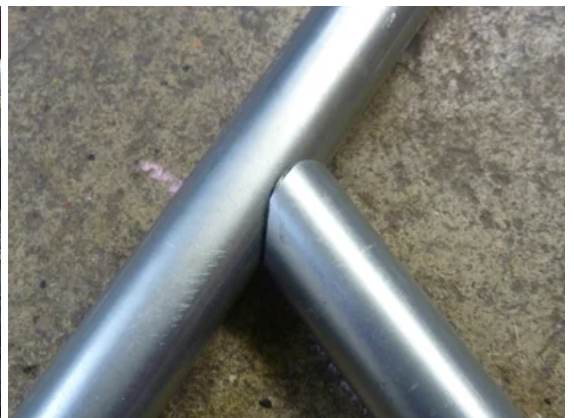
Design: Depending on what you are familiar and comfortable with, drafting or a 3d computer model can save a lot of time and wasted materials - nevertheless - some people are comfortable with mere hand sketches or scale physical models. Whatever your medium, try to plan ahead

3D modeling:

I modeled my frame in Rhino 3d. Sketch-up and other similar programs will also work fine. It doesn't have to be a perfect model - but it will help eliminate a lot of trial and error down the road

Once I had my design worked out in the computer, It was time to start building.

Step 7: Making the Frame





Rolling:

A tubing roller is a relatively pricey tool (\$160+) and isn't used that much for this project, so, if you know someone who has one, its a quick and easy part of the project

The fan shroud should provide at least a couple inches of clearance around the prop in every direction - so, the minimum O.D. for the shroud should be $\text{PropDiameter} + 4"$

Bending:

Tubing benders are relatively inexpensive, however, again if you can borrow one from someone, the bulk of the bending could be done in a single evening if you plan out what you will be building ahead of time

The right tools:

A simple cut off wheel and grinding wheel in an angle grinder will suffice for this, however it is a definite time savings if you can get hold of - or make - a tubing notcher (basically a hole saw in a fixture)

The cuts can be made with a hacksaw, chop saw, cut-off wheel or whatever you have that works
To get the shape to match another tube, you will need a grinder/sander of some sort.

Tight Joints:

Mark the tubes where they need to be cut and go a tad shorter - grind the last bit for a precise fit - the better the fit, the stronger the joint, and the easier the welding/brazing will be

Welding vs. Brazing:

Brazing is sufficiently strong if done properly, however welding is preferred. I have built and safely flown a frame which is entirely brazed together - a brazed joint can be made equally as strong as a welded joint - however it will be heavier than a welded joint (as more filler rod is required to get the same strength as welded steel).

Warning! EMT conduit is galvanized - meaning that it is coated with zinc. cutting, grinding, sanding, brazing, and welding produce airborne zinc dust which can pose health risks if not handled with care. Doing the bulk of the work outdoors is suggested, and proper safety equipment should be worn - A simple particle mask and safety glasses are minimum.

Step 8: Paint



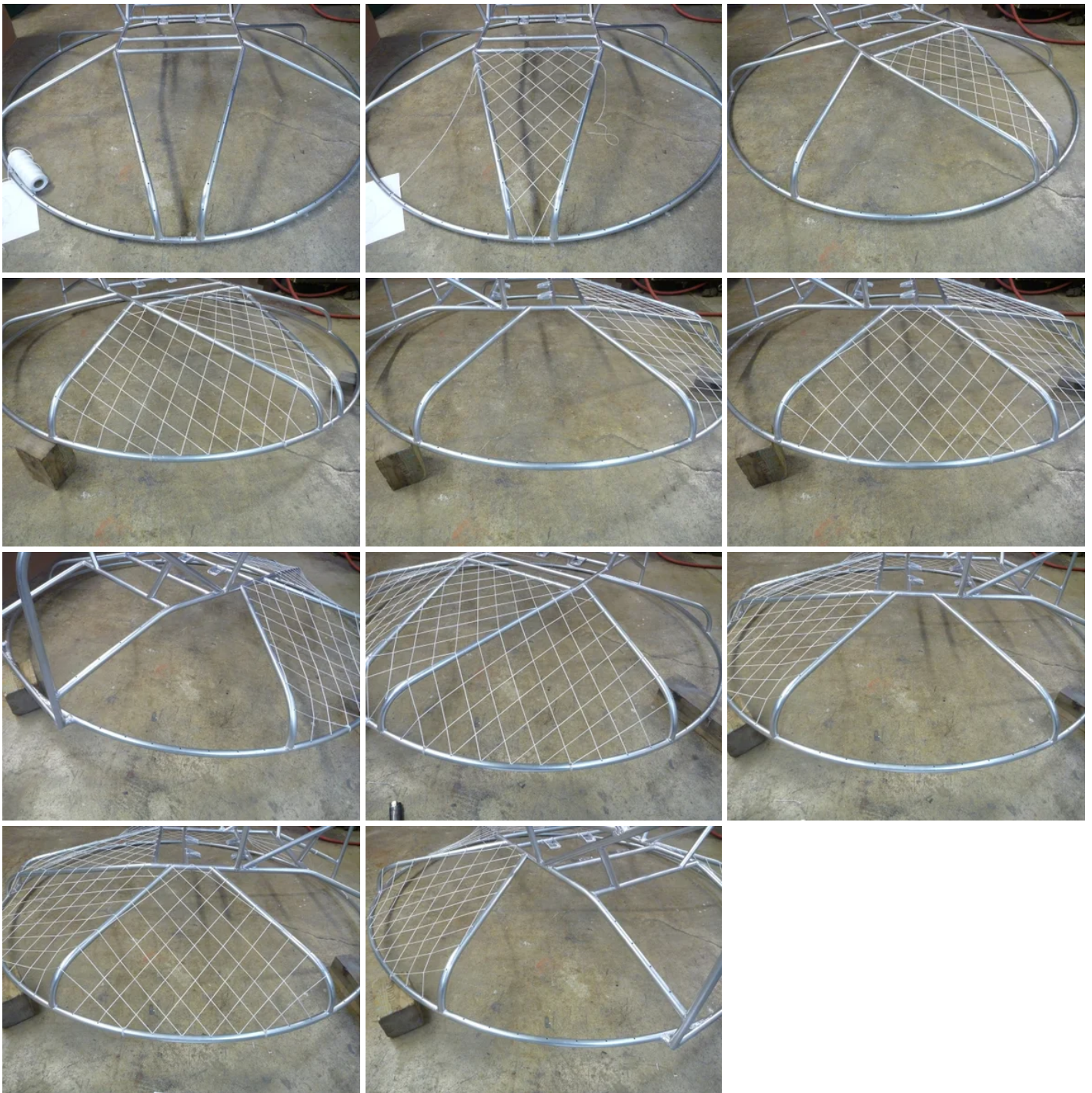
Before threading the safety net, I wanted to quickly hit the welds and drill holes with paint to keep the bare metal from rusting.

Eventually I plan on painting the frame to look nice - and re-string the netting with a color other than white, but I also figured that it is somewhat likely that I may make changes to the frame as I use it and would rather not have to worry about messing up a nice paint job.

Below are some renderings of the frame in Orange, Red, Blue, and Green - If anyone has a preference about colors - leave me a comment, and I'll paint it the most popular color

Step 9: Safety Netting





Why a Net?

Safety netting is what keeps your fingers on your hands, and other stuff out of the propeller.

One of the most common injuries in paramotoring is getting struck in the hand by a spinning prop. A good cage and netting design can help eliminate that from potentially happening. The goal is to eliminate all possibility for hands, feet, elbows etc getting anywhere near the propeller

Removable netting

Some manufacturers of paramotors use a removable netting that can be taken off for dis-assembly. One of the issues with this style netting, is that in the past some have unintentionally come partially unhooked from the cage in flight and gotten wrapped around the propeller - This will typically stall the motor at best - but can have far worse consequences.

I chose to create a permanent netting that is non-removable. By drilling small holes through the tubing of the frame, I was able to weave a length of braided nylon mason's line through each section of the frame.

Through-holes vs. Rivets?

One method for permanently attaching the string to the cage is drilling a hole through one side of the tube, and using a blind "pop" rivet to create a point to wrap the sting around. Rivets work fine, however they add

cost and add weight.

I chose to drill through holes in the tube and thread the string through them.

The drilled hole leaves a burr - So I followed it up with a countersink to round the edge and remove the burr - and lastly, I smoothed the holes with coarse steel wool before threading the string through the holes

To get the thread through the holes in the tube, I super-glued a straight section of the line to act as needle for threading through the holes - it works great and is super simple

Step 10: Hand Throttle

The throttle needs to be little more than a hacked off bicycle handle with a brake lever, wrist-strap, and a momentary push button attached

Spare Parts:

I made mine using a piece of aluminum tubing from a old broken ski pole, a plastic bicycle brake lever, piece of elastic band, and few miscellaneous parts.

Found Objects:

Throttles from existing equipment like leaf blowers and such can also work well. What you want is something that will fit comfortably in your hand and wont interfere with you controlling the paraglider

Wiring it up:

The kill switch simply grounds out the coil for the spark plug -

Step 11: Fuel

The fuel tank can be as simple or as complicated as you would like it to be. Some people use modified gas cans, or tanks from other powersport equipment, some make their own by bending and welding aluminum sheet, while others create custom composite tanks.

Fantastic Plastic:

A plastic gas can is by far the easiest and cheapest solution for a DIY project like this. A composite tank may save a couple ounces, but it certainly isn't worth the time or cost for what were looking to do. I tested out a few different shapes, and found that squarest one fit the best on my frame - It was about \$11 at a local hardware store

Size:

Depending on the size of the motor, and what type of flying you are doing, many setups can easily get 90minutes of flight time on 2 .5 gallons of fuel.

5 gallons is the max capacity for a FAR 103 legal aircraft

more fuel = more weight

Starting out, you will want to learn how to fly with only a relatively small volume of fuel in your tank - to help with the amount of weight you are carrying. Extra fuel adds weight quickly - Around 8lbs per gallon - 5 gallons = 40lbs

Tank location:

Depending on the carburator, some tanks require gravity feed, where as others have built in pumps. This can determine where the tank must be located. The majority of tanks are located near the bottom of the paramotor, as it keeps the weight low. Some however, mount their tanks above the engine to take advantage of gravity flow. Wherever it is positioned, it should have ample clearance from the prop, and give your legs sufficient clearance to run for takeoff

Step 12: Harness / Seat

Buying:

Harnesses can be purchased new or used - this is one of the cases where making may actually be safer than buying used - the points at which the paraglider risers attach to the harness are known as "hangpoints" when you are in the air - they are the points from which you and the paramotor actually hang from the risers.

Older harness designs had the risers attach to webbing on the shoulder straps of the harness - newer setups utilize "fixed" hangpoints which are wider apart, and can't be pulled closer together in the event of riser twist.

Making:

If you are on a tight budget, and already have experience with sewing, then making one isn't rocket science.

There are a number of designs for harnesses and means for attaching the harness to the frame. Again, rather than "reinventing the wheel", I recommend learning from that which is already out there and building off of it.

I already owned a free-flight paragliding harness, so I learned from a combination of it and existing PPG harnesses to create my own.

Materials:

The strength of the seat actually comes from the webbing, and the seat board - the fabric really shouldn't have to support a lot of weight if designed properly.

Step 13: Reserve Parachute

Why have one? Reserves have saved lives. Think of a reserve as cheap insurance you'll probably never need. It's all about peace of mind.

How they Work:

If ever your Paraglider collapses, and you are unable to get it to re-open - the handle on the reserve parachute deployment bag is grabbed, and the reserve parachute is pulled out with the handle. Once open, it slows the descent of the pilot and motor to a survivable fall.

Round Reserves:

Most reserves are a round parachute with a single main line that splits into two at a "Y" bridle near the harness. The two ends attach to the shoulder straps of the harness, and the intent is strictly to slow your fall.

Steerable Reserves:

Unlike the round reserves with a single line, steerable reserves have two risers so that once deployed - the pilot can steer the reserve parachute to try and avoid hitting trees etc. The down side of most steerable reserves is that they are heavier than round reserves

The reserve parachute is meant as an extra measure of safety. Most pilots who have flown for many years will never have to use their reserve, but it is still a good thing to have. Learning the ins- and outs of when to use a reserve parachute should be covered by an instructor along with a simulated reserve deployment scenario.

Some pilots choose not to fly with a reserve, for various reasons.

For a beginner starting out in the sport, I say that a reserve parachute is a must! After taking off for your first few flights, It will feel much more comfortable to be high in the sky with lots of clearance from trees and the ground. In these scenarios, a reserve parachute is a good safety buffer to have, because you really never know what could happen.

Step 14: Gliders

it gives you wings!

Different pilots have different brand preferences when it comes to gliders, however it is safe to say that all manufactures make better gliders today, than they did 10 or 15 years ago.

The fabrics used, and the geometries of new paragliders are leaps ahead of older gliders. I would highly recommend a relatively recent, used glider for someone starting out. Something which is very old will be difficult to launch and hard to control for an inexperienced pilot.

Used:

Many instructors offer used gliders at a fraction of the price of new, and often in very good condition. Ordering a glider online can be risky, as you dont get to try it before you buy it. Most instructors will allow you to try kiting a glider before you purchase it from them.

Size is everything:

The size of the glider is also very important. With newer materials and better geometry, smaller gliders can be used to support the same, or more weight as older larger gliders. A larger glider will typically go slower than a smaller glider, however, a larger glider has a greater ability to pull the pilot in stronger winds. This is another reason for buying something from an instructor, as they will help you with this decision, and understanding the details of different wings.

XS, S, M, L, XL, Tandem:

Gliders are designed to work with a particular weight loading - based on the weight of the pilot, and the equipment he is using, the wing size should be chosen accordingly

Step 15: Know the Rules

In the US, Paramotors fall under Federal Aircraft Regulation 103

The full list of rules and regulations can be found here:

<http://www.ultralighthomepage.com/FAR.part103.html>

In Canada, the laws are a bit stricter than in the US, and can be found here:

<http://www.tc.gc.ca/eng/civilaviation/publications/tp185-3-09-feature-729.htm>

(FAR 103) - overview

- (a) Is used or intended to be used for manned operation in the air by a single occupant;
- (b) Is used or intended to be used for recreation or sport purposes only;
- (c) Does not have any U.S. or foreign airworthiness certificate; and
- (d) If unpowered, weighs less than 155 pounds; or
- (e) If powered:
 - (1) Weighs less than 254 pounds empty weight, excluding floats and safety devices which are intended for deployment in a potentially catastrophic situation;
 - (2) Has a fuel capacity not exceeding 5 U.S. gallons;
 - (3) Is not capable of more than 55 knots calibrated airspeed at full power in level flight; and
 - (4) Has a power-off stall speed which does not exceed 24 knots calibrated airspeed.

Step 16: Haul It

Some people live in areas where they can literally take off from their back yard, where as others are required to travel to another location to take off. I know people who throw their equipment on a four wheeler, and drive to a neighbors field to take off. I also know of people who have to drive 30 minutes to get to an airpark where they can take off. For my setup, I built a simple hitch mounted platform that I can attach to the back of my car for transport. This allows me to keep the unit fully assembled, and even allows me to run, and warm-up the engine with it attached to the back of my car.

People with pick-ups, and large vans, may be able to easily haul their fully assembled equipment as well.

A take-apart frame enables people without the means of hauling a fully assembled frame to break the cage apart for more compact transport and storage.

Step 17: Pre-flight

Before you take to the skies - there are a few last things to do-

If using a wooden prop, its smart to Safety wire the bolts to prevent them from vibrating loose. Plus it looks kinda cool, and is fun to do in small quantities :)

You want to check every bolt and strap to make certain nothing has loosened up - Its much easier to make corrections and adjustments to your equipment on the ground than in the air.

If you are a relatively new pilot, or still not feeling completely comfortable with your equipment - get an experienced pilot to check through everything for you, and give you any further training needed to build your comfort level - (by this I mean a genuine comfort with everything - Not an adrenaline fueled false sense of comfort)

If you aren't ready - don't rush it! **You can never train too much**

Step 18: Get High!

Once you have the proper training and good equipment, all that is left is to wait for good weather, and ride the wind :)

I remember reading once that it is good for PPG pilots to have multiple hobbies. Depending on where you live, you may have to wait a while to get good weather on a day where you have the free time to fly. Some people fly year-round in a wide variety of conditions, but for starting out, it is worth waiting for good weather. I remember getting very impatient waiting for the right conditions for my first flight, but I am sure glad that I did.

So get training, build/or buy safe equipment, be safe (and patient), and you'll have a blast. Send me picture, and maybe we can meet up and do some flying together.

Step 19: After-thoughts & Lessons Learned

A friendly nudge of encouragement:

I highly encourage people to attempt projects slightly beyond their comfort zone- I believe that it helps a person's skill level to develop more quickly and completely both in a mental and physical sense. I will admit that this project was slightly more challenging than most of the projects I tackle, but I couldn't be happier that I did.

Plan and think through everything - and I can almost assure you that you'll still overlook something.

Do a good amount of research, theorizing and tinkering before attempting to build the final thing. Also, never be afraid to scrap something because you see a better way of doing it, or it didn't turn out quite the way you would have liked the first time around- The second (or third in some cases) attempt at most things will often yield far greater results.

Resourcefulness:

I have always taken pride in not allowing my lack of available resources (tools, materials, money, space, etc.) to prevent me from making or doing anything. I love coming up with creative alternative methods for doing things.

Despite my desire to do things as inexpensively and simply as possible, certain tools can dramatically reduce the amount of time required to do certain things. This in turn can allow a person to do more and better projects. I seem to never have enough time to do all the projects that I would like to, and I honestly believe that having a laser cutter would speed up a number of the tasks I find myself doing on a daily basis. If I were fortunate enough to win the laser cutter, I can guarantee that it will be well used. I recently cut out a bunch of intricate shapes in polypropylene sheet for a project with a jig saw - not only was the cutting out very time consuming, but I also had to de-burr all the edges after cutting the pieces which took even more time. Another project I have been wanting to work on requires laser cutting fabric. I had some samples cut for the project, but the closest place to me is about a 90 minute drive (I live in the boonies - [not NY city - western NY]) and most places aren't very open to doing "experimental projects" for someone who doesn't have a lot of money. So....bottom line is - I would love to win the laser cutter, and I can ensure it a safe and happy home :)

Thanks for reading though my instructable - I hope you enjoyed it, and hope to see you in the sky someday :)