

TUTORIAL: PREPARATIONS AND LAUNCH

PDF WITH DETAILED INFORMATION AND MORE

If you want to build a large and reliable water rocket, you do not only need good components – you should also assemble the rocket carefully and prepare it correctly before launch. That’s why we want to explain to you everything you need to know before and during the launch.

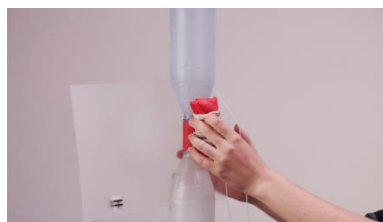
ASSEMBLY OF THE ROCKET

First, you should make sure that all components of your rocket are assembled correctly. The **fins** of your rocket, whose shape you should have planned at the beginning of the construction, can now be attached to the pressure tank at regular intervals with polyurethane based adhesive. Make sure that the fins are placed straight. If you haven't thought about the shape of your fins yet, we recommend that you follow our [guide about the planning phase](#).

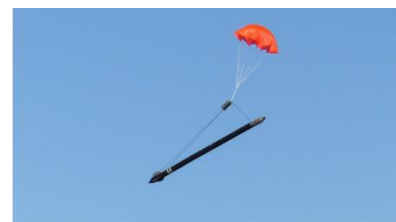
If your rocket has several pressure vessel segments, it is important to check that the **Tornado Tube** which connects the segments, has been screwed on tightly. You can also **attach the parachute** to the Tornado Tube with a nylon cord. For rockets with only one segment you have to fasten the **nylon cord** at the upper end of the vessel. If your pressure vessel ends with a bottle neck, you can tie the cord around it. But if your pressure vessel ends with a bottle bottom, you have to glue the cord to the bottom with epoxy, and then lead it through a hole in the lower part of your parachute system. It makes sense to tie the cord at the end in such a way that it cannot slip through the hole in the parachute system. Afterwards you can attach your parachute system to the pressure vessel with epoxy resin and hot glue. If you plan to attach a camera to the rocket and you are looking for stable shots, we recommend a **three-point parachute attachment**. For this purpose, two more nylon cords are attached to the rocket chamber to prevent the rocket from swinging too much after the deployment of the parachute.



The fins are attached to the chamber



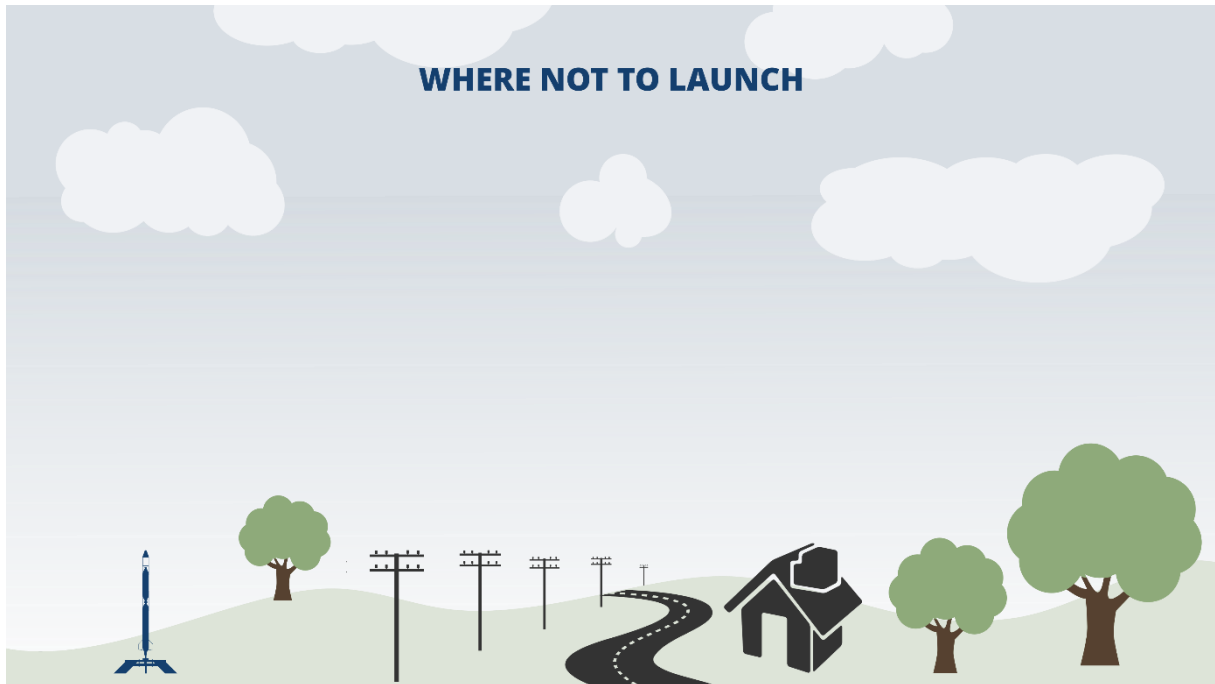
The parachute is attached to the Tornado Tube



Three-point parachute attachment in action

WHERE TO LAUNCH

After you have assembled your water rocket, it's important to find a suitable launch site. Your launch site should be located so that there are **no roads, houses, trees or electricity wires** nearby. You should also have a good view of the whole area. Make sure your launch site is large enough, as the rocket can drift in the **wind**.



LEGAL

But before you are ready to launch, let's talk about the legal situation. Since we're from **Germany**, we only know the legal situation here – and it's pretty complicated. For example, you have to attach a sticker with your name and address to the rocket, and you have to get a license when flying higher than 100 meters. You can probably be happy about **living in another country** in this regard. But generally speaking, you will at least need the **permission from the landowner**. Besides that, there are often laws and additional regulations regarding the launch of model rockets. Please **inform yourself**.

PREPARATIONS

After you have done this, the preparations for the launch can begin. We have created a **checklist** for you with all the important steps. It is important that you take a thorough approach and check all the steps several times. This increases the success rate of your rocket enormously. First of all, you should align your launch pad with a water level and then **anchor it to the ground**. Attach the release line, the air pump and the filling system.

Before the rocket can be put on the launcher, you should fold the parachute and insert it into the system. The trigger, which prevents the timer from running, can also be inserted. Remember to put an O-ring seal on to your rocket. Now it's time to **place the rocket on the launch pad**. Don't forget to attach the **trigger** for the parachute system to the pad. Once you've done that, you can fill the filling system with water and then build up pressure with the built-in air pump until the desired amount of water has flowed into the rocket. Then close the ball valve of your launcher and remove the filling system. A string attached to the ball valve can be useful if you have to abort the launch from a safe distance.

→ [Download: Launch Day Checklist](#)

TIPS FOR FILMING

For all of you who not only want to launch, but also want to make some nice videos, here are a few tips for you to get the best results possible.

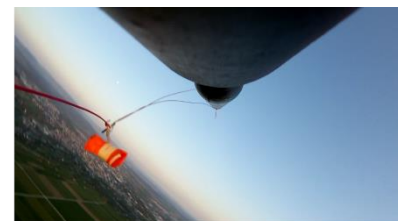
- First of all, you don't need an expensive camera to take good shots of your rocket. Most mobile phones today have a camera that is easily capable of recording beautiful videos. Much **more important than expensive hardware is the correct handling** of it.
- One way to achieve this is to completely use the space available on the screen. That's possible when **filming in landscape** - even if the rocket ideally starts vertically.
- If your camera or mobile phone does not have **optical image stabilization (OIS)**, we recommend that you use a tripod for all shots or that you hold the phone firmly in place and do not pull it up when the rocket launches.
- If you have a **slow motion function**, use it! It's awesome and you should definitely try it out.
- But the most important thing is to bring variety into your own video, and this can be achieved through **different perspectives**. Near, far, frog and bird's eye view are the classic ones here.
- The most spectacular shots can be made with an **onboard camera** attached to the rocket. We simply stick a small camera, which costs about 40€, to the pressure vessel of the rocket.



Always film in landscape



Tripods can be useful when your camera hasn't OIS



Onboard cameras can film spectacular footage

LAUNCHING YOUR ROCKET

But let's get back to the launch preparations. You have now reached the point where you can build up pressure in the rocket. Once you have started, **do not approach the rocket**, as it may explode or launch unintentionally. Please always **keep an eye on the surroundings** so that nobody is endangered. You should also wear **protective goggles**. It is best to build up the pressure as quickly as possible using the air pump. Once you have reached your desired launch pressure, all you have to do is pull the release line and the rocket will launch.



To succeed with the construction of a water rocket, you will have to work very precisely and carefully. Especially some of the adhesives and resins are pretty dangerous. Thus, please wear gloves when working with adhesive or epoxy and don't breathe in the gases. It is recommended to work outside whenever toxic gases could develop. The launch of a water rocket may need permission from the competent authority, depending on your location. You need the permission of the landowner if you launch on foreign territory. Please wear safety goggles when pressure testing or launching your rocket. Keep a safe distance to the pressurized rocket. We can not guarantee the accuracy, completeness or feasibility of any of our tutorials. We are not responsible for any damage or harm on objects, animals or humans. We do not guarantee that the information provided on this web site is complete, accurate and always current. This applies also to all links cited on this website points, either directly or indirectly. We are not responsible for any damage or harm to objects or individuals.