

BALLOON/FLIGHT TRAIN CHECKLIST

****Note that Zooming In will make text easier to read.****



Step 2 - Attach the inflation system to your helium gas cylinder. The regulator on the inflation system screws directly into the valve at the top of the gas cylinder. Do not use a wrench to tighten the pressure regulator onto the gas cylinder valve as this will damage the rubber O-ring seal. A hand tight seal is more than adequate. If you're using a large industrial gas cylinder, lie it on its side so it can't fall over and hurt someone. In this tutorial we're using a lightweight aluminum 55 cu.ft. gas cylinder (a common rental size at many Party City stores).



Step 3 - Insert the inflation system nozzle into your weather balloon's neck. Do not unroll the weather balloon yet. It is much easier to work with the balloon's neck when the balloon is still rolled up.



Step 4 - Secure the weather balloon to the inflation system nozzle. Wrap both the neck of the balloon and the bottom of the inflation nozzle together with electrical tape. This locks the balloon to the inflation nozzle and prevents it from accidentally slipping off the inflation nozzle and floating away during the inflation process. You don't want to "launch" your weather balloon without a payload! We do not recommend using a bungee cord to clamp the balloon neck to the inflation system nozzle. If the bungee cord slips, it can whip around and hit you in the eye.



Tip When you cut the electrical tape, fold the end of the electrical tape over onto itself to make a pull-tab. This makes it a lot easier to remove the electrical tape and disconnect the weather balloon from the inflation nozzle once you're done inflating your balloon.



Step 5 - Unroll the balloon and prepare it for inflation. Before you start to inflate your weather balloon, have your helper hold the balloon loosely over their forearms. Your helper should always stand downwind of the balloon neck / inflation nozzle. Depending on the size of your weather balloon, you may need to line up more than one helper. For this tutorial we are using our 350 g balloon. Make sure your helper isn't wearing glasses, sharp jewelry, etc. that can snag or puncture the weather balloon.



Step 6 - Carefully start inflating your weather balloon. Slowly open the valve on your helium gas cylinder to begin inflating your balloon. Always keep one hand on the valve so you can easily control the rate at which you inflate your weather balloon.



Step 7 - Let the balloon lift itself out of your helpers forearms. Eventually the balloon will rise out of your helper's arms. You can now start measuring your balloon's lift.



Step 8 - Inflate your balloon until it has the right amount of lift. When measuring your balloon's lift, make sure there is slack in the inflation hose. You want all of the balloon's lift to be pulling up on the scale, not the inflation hose. Don't forget to add the weight of the inflation nozzle to the reading on the scale. The inflation nozzle weighs 100 grams, so if your scale measures a lift of 700 grams, your balloon is actually generating 800 grams of lift (measurement on scale plus the weight of the inflation nozzle). Keep inflating your balloon until you have the right amount of lift (see our [Balloon Performance Calculator Tutorial](#)). If your target lift is 1,000 grams, you'll want to inflate your balloon until your scale reads 900 grams (target lift minus the weight of the inflation system nozzle). Once your balloon has the right amount of lift, shut off the supply of helium.

1. **Fully Inflated Weather Balloon** - see our Inflating a Weather Balloon tutorial.
2. **Three Elastic Bands** - Elastic bands comes standard with our [Eagle Pro Kit](#). Also available at most office supply stores.
3. **A 5 cm - 2 inch Diameter Loop of Flight Line** - the attachment point between the balloon and the flight train. Just cut a length of flight line 15 cm ~ 6 inches long and tie the ends together.
4. **Electrical Tape** - comes standard with our Eagle Pro Kit.
5. **Helpers** - it's possible without them, but extremely challenging even for the experienced.



Step 1 - Carefully remove the balloon neck from the inflation nozzle. Grip the balloon neck / inflator nozzle with one hand and pull down on the electrical tape pull-tab you created before inflating your weather balloon. The inflator nozzle will now easily slide out of the balloon neck.



Step 2 - Have a helper grip the balloon neck. Have them securely grip the balloon's neck between their thumb and forefinger with their thumb and forefinger facing down. This keeps your helpers' extra fingers clear of most of the balloon neck where you'll be doing all the work.



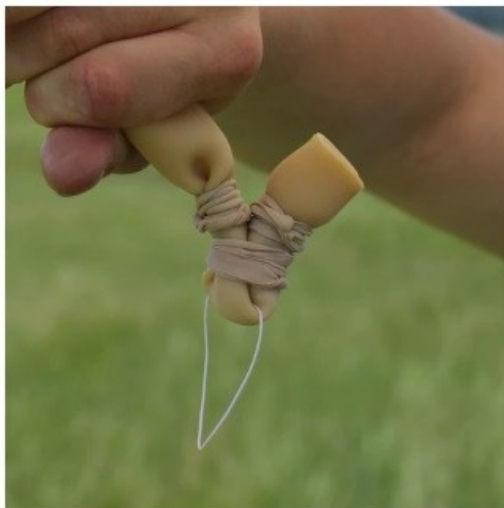
Step 3 - Loop-twist-loop-twist an elastic band roughly 3 cm from the top of the neck. If you have long hair, you'll recognize loop-twist-loop-twist as the method used to tie your hair in a pony tail using an elastic hair tie.



Step 4 - Loop-twist-loop-twist a second elastic band roughly 3 cm from the bottom of the neck. This step adds a second layer of redundancy to ensure no helium leaks out of the balloon neck.



Step 5 - Place your 5 cm loop of flight line over the neck of the balloon. Fold the neck in half and have your helper clamp the end of the neck under his thumb and forefinger.



Step 6 - Loop-twist-loop-twist a third elastic band just above the fold point in the balloon neck. This secures the loop of flight line within the fold of the neck.



Step 7 - Wrap the balloon neck in electrical tape. This secures everything in place and gives yourself peace of mind that you aren't just relying on elastic bands to keep everything together.

For Added Security – Carefully add and tighten down 1 plastic Zip Tie over the electrical tape, and cut the excess from the Zip Tie. **Careful not to puncture the balloon!!**