

How to Inflate a Hot Air Balloon

By Douglas Crook

On June 4th, 1783, the Montgolfier brothers made history when they flew a massive balloon capable of carrying multiple people over the French Countryside. Today, this tradition continues to leave those both in the balloon and on the ground in amazement. Although riding or flying a hot air balloon is extremely intriguing, there are many precautions that must be followed in order to ensure a safe and satisfying trip into the atmosphere. The process for preparing a hot air balloon for flight tends to be extensive, so it is of the utmost importance to carefully follow all instructions during preflight procedures. This instruction set will feature specific steps for crew members and pilots to safely and effectively inflate a hot air balloon for takeoff.

DANGER: *Improper set up procedures relating to the balloon, basket, burner, or crew may lead to serious injury or even death. All Federal Aviation Administration rules and regulations must be followed in order to ensure a safe flight.*

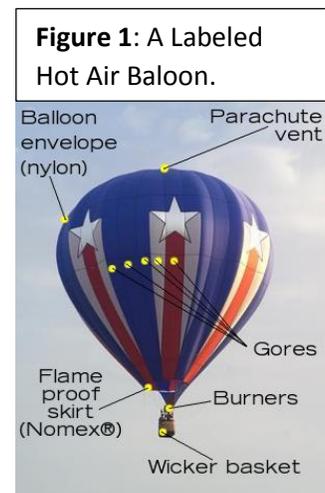
WARNING: *The pilot utilized during flight must have an up to date license issued by the Federal Aviation Administration and have a certain number of previous flying hours in a Hot Air Balloon. Failure to do so could result in fines and time in jail.*

CAUTION: *This instruction set has been created to provide the user with a basic understanding of the procedures involved in the hot air balloon inflation process. The pilot and crew members should have extensive training and experience with the balloon that they are working with. All those involved in the flight of a hot air balloon should be briefed on safety instructions and measures before preflight procedures.*

Before Beginning Inflation

Before the inflation procedure is begun, there are a few tasks that must be completed in order to prepare the balloon to be set up for a safe and enjoyable flight. A hot air balloon consists of three main sections including the basket, burner, and envelope (See Figure 1). Before the envelope is filled with cold air, the wicker basket, burners, and nylon envelope must be securely connected. This process should be completed by an experienced pilot and crew who have previous knowledge about how the balloon being utilized should be fastened together. All hot air balloons are unique in their design, so it is a good idea to check with your inspection professional about how to properly set up the hot air balloon. After the basket, burner, and envelope are all properly connected, the balloon should be laid out flat on the ground with the parachute vent facing away from the burner. Now you are ready to begin the inflation process.

NOTE: *This instruction manual has been created for the specific purpose of detailing the procedures related to balloon inflation, not the initial set up of all hot air balloon parts. This guide assumes pilots and crew should have previous training related to the balloon set up.*



Inflating the Balloon

When flying a hot air balloon, the most dangerous time frame is not when the balloon is in the air, but instead when the balloon is being inflated on the ground. This is the part of the flight where there is the most risk of passengers and crew being harmed. The envelope could also be ripped or set on fire if all crew members are not careful to keep the balloon under control while filling it with air. If all preflight instructions are followed carefully, the hot air balloon flight will result in an adventure like no other.

- 1.) Start with the balloon flat on the ground with no air inside. The basket should also be on its side with the burner pointing parallel to the ground.

The basket, burner, and envelope should all be laid out in a straight line.



- 2.) Attach the basket to a heavy object such as the chase van with a heavy duty rope or cord.

NOTE: *The strap utilized should be completely secure on the side that is connected to the van. The end that is connected to the balloon should be a quick release set up as seen in the picture to the right. The chase van is the utility vehicle that the crew will utilize when following the balloon during the flight.*



- 3.) Place a large industrial fan to one side of the basket slightly behind the burner. The fan should be aimed parallel with the ground towards the center of the mouth of the envelope.

The fan should be pointed towards the mouth of the envelope but not at the burners. The Balloon envelope is labeled in the diagram above.



- 4.) Instruct one or two crew member(s) to hold the mouth of the envelope open while another turns on the fan on. Direct the flow of the cold air into the bottom of the balloon.

As the balloon fills with air, crew members will not have to hold the envelope open any more as the envelope will stay open on its own.



- 5.) As the balloon fills with air, other crew members should connect the parachute vent to the rest of the envelope. The parachute vent will connect to the rest of the envelope via Velcro straps on the inside of the balloon.

As the balloon fills with air, the Velcro straps should be secured in the order of top to bottom.



- 6.) Once the balloon has half filled with air, the pilot ignites the burner to fill the balloon with hot air.

DANGER: *At this point, crew members and passengers should stay away from the mouth of the envelope to avoid getting serious injury. Experienced crew members can hold the connection lines away from the burner.*



- 7.) Turn off the fan once the balloon completely inflates and starts to rise off of the ground.

As the balloon starts to rise the pilot should regulate the temperature inside of the envelope to control its ascent.



- 8.) Using the crown line, crew members must control the balloon as it continues to stand upright.

As the balloon starts to rise, crew members will pull back on the crown line so that the envelope will rise slowly. If it rises too quickly the balloon could tip on to its side again.



- 9.) After the balloon has reached an upright position, the crown line should be brought into the basket and tied off in a convenient position.

At the point the passengers and pilot should be inside of the balloon and ready to take off.



Conclusion

At this point, you now have a basic understanding of the procedures and regulations that must be followed in order to effectively and safely inflate a hot air balloon. Flying a hot air balloon is a tradition that has been around for centuries, and continues to leave observers in complete shock and awe. Sharing an experience such as this with others is the most rewarding form of volunteerism that you could be involved in.