

Crew Operations Manual



Chapter 1. The Basics

- A. The one absolutely indispensable duty of the crew is to get the chase vehicle safely from the launch site to the landing site. Every other function of the crew is in addition to, and pales in comparison to, this. Obviously, a clean driver's license is required for this (I heard once of a person having driven a chase vehicle for a long time, thinking that since it was related to ballooning, driving rules didn't apply. All driving rules DO apply). But if you don't have a driver's license, you can still be valuable help, especially with our big balloon.

*Several of our balloons are carried in trailers. If you have not driven (and backed up) a trailer before, we will be glad to give you training.

- B. Salary.
 - a. Crew Chief: \$75 per flight
 - i. Able to assist any of our pilots with any of our balloons and chase vehicles.
 - ii. Capable of chasing by yourself.
 - iii. Able to diplomatically approach landowners.
 - iv. Conscious of Covid 19 precautions, including our appearance to the public.
 - v. Always neat and clean in appearance.
 - b. Assistant crew chief: \$60 per flight.
 - i. Always neat and clean. (We will supply you with a LBC/BOL crew shirt. Extras, and other apparel periodically available at discounted price.)
 - ii. Willing to learn and adapt!
 - c. We may stop for food or ice cream after the flight, at the discretion and at the expense of the pilot. In other words, this is not guaranteed, or part of the salary, but socializing after the flight is part of the fun!
- C. If we don't fly, the company doesn't get paid, the pilot doesn't get paid, and the crew doesn't get paid. We try to avoid going to a launch site if the weather is not flyable, but occasionally it happens.
- D. Crew assignments
 - a. Crew assignments are generally made by Lee. His contact is 585-749-1320, or Lee@Libertyballoon.com. Be sure Lee has information about when you are available.

- b. If you are interested in going on more flights, be sure to let Lee know. On the other hand, if you are unavailable, going on a trip for a while, etc, let him know that too.
- c. Any time you are scheduled for a flight, it is on a “wind and weather permitting” basis. Over 50% of the flights we schedule get canceled at the last minute for weather. So **our procedure for passengers as well as crew is for everyone to call our “flight status line” at 585-243-3178 (go to ext. 1), before you leave home for a flight.** The recording on that line will say whether the flight is on or off.
- d. We always fly either at sunrise or near sunset, looking for the calmer winds and more stable air at those times. The time at which we activate the weather message on the phone, and the check-in time for the flight, will adjust each month. See the listing of times on the website at Libertyballoon.com/flightinfo/
- e. Our main flying season is May through October. However, we keep a balloon ready to fly all winter. Winter flights are few and far between, but can be a wonderful adventure.

Chapter 2: Preparation and inflation

- A. Each balloon will have its own assembly process. Try to get familiar with all of our balloons and pay attention to other balloons at Festivals or when we are flying beside other pilots. Each balloon design and manufacturer has its own advantages and disadvantages. The more you know about the system you are handling, the better.
- B. Ground handling of any balloon can include some physically strenuous activity. Know your own limitations and don't let us get you into any situation you shouldn't be in.
- C. Equip yourself with good clothing and equipment. Gloves are essential to protect your hands from rope burns when handling ropes. If you might be handling propane, leather gloves are better than cloth. Shoes should be sensible, and water resistant for morning flights in wet grass.

Briefing:

- The briefing the pilot gives the passengers serves several functions. Of course, the information in the briefing is important for the passengers' safety. But this is also a chance for the pilot to learn a little about the passengers...are they frail, are they anxious about altitude, etc, etc. You have heard the briefing before, maybe many times. But please don't interrupt the briefing, or disrespect it by talking over it. If you are conversing with other crew or spectators, please do so at a distance or quietly, so you are not a distraction for the passengers during the briefing.

Position the fan:

- Beside the basket, aiming to “fill the mouth”. On left side of basket. (Ask about the 3 reasons for that position.)

Holding the mouth open for inflation:

- Get air inside. Use mouth handling lines to keep skirt and mouth away from flame. Don’t pull the skirt out to the side as this brings the bottom of the skirt up closer to the flame.

Working the crown line:

- Know how to install the top on parachute style tops.
- On spring top, make sure springs are secured.
- Check to ensure red line is pulled up toward the top enough so it will not pull the top loose during inflation.
- On the Rainbow balloon, roll the balloon to where the orange stripe is at the top...this keeps the cables at the mouth straight and away from the flame. Learn how to tell your balloon is in the correct position. On Sunnyside the smiley face is a good indicator. Emerald City and YBR have their own indicators.
- On any balloon: know how to look through the top to the cables at the mouth. Roll the balloon to where those cables are straight, so flame from the burners is not striking the cables.
- If balloon is rolling around in the wind, do what you can to minimize the roll.
- As the balloon starts to stand, especially as it reaches the vertical position, keep some back pressure on the line so the balloon does not sway over backward toward the chase vehicle. But don’t go overboard on this...it is not your goal to hold the balloon down. Just enough pressure on the line so the balloon stands gracefully is all that is necessary. An inflation should be like a finely tuned orchestra, not like a wrestling match. Unless the wind is blowing, then there may be some wrestling to be done!
- If the wind is very light, be alert for a wind shift, even a reversal during the inflation. Don’t let the balloon roll back on top of the pilot and basket. Keep enough pressure on the crown line to keep the cables at the mouth (as well as the fabric around the throat) taught.
- On some balloons, we let the crown line hang down during the flight. On other balloons, if there is something on the end of the line that might get tangled in trees, we secure the end of the crown line to the basket. You will get to know which is which.

- Your pilot will signal you when you are done with the crown line. Then come in to the basket. The fan may need to be moved away from the basket, or you may need to hold some weight on the basket, or the passengers may need help to board.

Bottom-to-top visual checklist:

- Get to know what this checklist is, and how by completing it, you are supporting your pilot.

Liftoff:

Depending on the wind, your pilot may ask various things of you. As the balloon is getting light, hold the basket so that the wind does not drag it forward before it is ready to lift off. Dragging at this point can throw the passengers off balance or at least make the takeoff uncomfortable. If there is more wind, the pilot may ask you to hold one of the tiedown lines until he is actually lifting off. Or he may ask you to untie a tiedown to release the balloon. No matter what you're asked to do when handling the balloon, never allow your feet to leave the ground, and never allow yourself to become entangled in any part of the balloon!

Handling the fan:

- Ask about gyroscopic properties of the fan (stability and precession). The practical application of these principles is:
 - In general, the fan shouldn't be moved while the blade is turning. If it needs to be moved, at least throttle down. And minimize any tilting of the plane of rotation of the prop.
- General safety of the fan operation:
 - Be alert to anything that might get caught in the fan, and don't let it get entangled! (long hair, scarves, handling lines on the mouth, belts, loose clothing, etc).
 - If there are spectators or passengers around, especially at Festivals, have someone stationed at the fan to keep people away from it. This person should know how to shut the fan off, and control the throttle and choke, as well as the above (about moving the fan).

Ropes and knots:

- You will want to get to know the slip knot we use for tie off. You might have occasion to tie or untie it. Once in a great while, it is helpful if someone has a jackknife handy in case a rope needs to be cut.

- Get to know how to daisy chain ropes, especially for tether ropes.

Four main safety precautions around an inflation:

- 1) Always be wearing gloves when handling ropes or propane.
- 2) Never wrap ropes around your hand (or any body part). If the wind gusts, the balloon WILL go with it! You want your body parts to remain with you. You want to be ready to let that rope go.
- 3) Don't hang out in front of (i.e., downwind) the basket during takeoff (or landing).
- 4) It is possible, and has happened a distressing number of times, that someone can be lifted off the ground and be injured or killed by falling back to earth. **** DO NOT** allow yourself to be entangled with the balloon at ANY time, and **do NOT hold on if you are going to be lifted off the ground, even if it seems non-threatening**. If you feel your feet about to leave the ground, LET GO.

Chapter 3: Chasing

Upon liftoff of the balloon, you will return the fan(s), carts for the big balloon, and tiedown line to the chase vehicle. The fan needs to be secured to prevent it from tipping over during the chase. If it does tip over, it will spill gas and oil on the floor, making a mess. If you have any question about how to secure the fan, please ask.

Once you are ready to follow the balloon, for the first few minutes of the flight you will notice the general direction the balloon is going. That will be obvious. But what might not be so obvious is that you will want to pay attention to winds aloft. You will want to correlate the altitude of the balloon to direction. Remember that wind usually works in layers. So as the balloon climbs, it might enter different layers, and go in different directions. The possibilities are endless, but say for instance, the wind is out of the south on the surface. So the wind (and the balloon) is going north. As the balloon climbs, it ends up going toward the west. As long as the balloon stays high, it goes west. Eventually you are just thinking about a westerly path. But remember what the wind on the surface was at takeoff. Most likely, the balloon will turn toward the north again as it descends.

Of course, as the flight progresses, it is possible that the surface wind may change. Be alert for flags, smokestacks, dust from a tractor working in the field, or what you might feel when you get out of the truck. If there is a dramatic change, your pilot might be very interested in your observations.

So be alert for changes but remember what has been happening during the flight.

We say the flight is aiming for 45 minutes to an hour in the air. So, after the first few minutes of the flight, work to be close to the balloon. When you first start chasing, your tendency will probably be to feel like you are ok if you have the balloon in sight. But it is better if you are a little more assertive about being close to the balloon. So, if the balloon is coming toward the road you are on, be in position for the balloon to pass directly over you. It is cool for the passengers to be able to call out to you, wave to you, and for you to maybe get a photo of them in the balloon. This is especially important if there are family or friends of the passengers following you during the flight. The experience of being able to communicate with folks on the ground, especially family and friends, is special to ballooning. You can create a really special moment for everyone, just by where you position yourself as the balloon passes.

As the flight nears the end, it becomes more important for you to be ahead of the balloon, ideally waiting for it as it approaches the landing site. Your pilot may (or may not) be able to direct you by radio or cell phone to his intended spot.

At the landing site there are two duties you might be able to accomplish. One is to check in with the landowner, to hopefully obtain permission for the balloon to land. (see much more detail on this in “Landowner Relations” section). The other is to assist with the landing.

Chapter 4: ASSISTING WITH THE LANDING

TWO SCENARIOS:

1. High wind (over 6 to 8 mph) The pilot will have to deflate the balloon to bring it to a stop. There may not be much you can do to stop the balloon. But being close by, in case we can get into a valley or behind trees and slow down, could be a big help. **BE SURE NOT TO GET IN FRONT (immediately downwind) OF THE BALLOON AS IT IS LANDING.**
2. Light or calm wind: This is usually the nicer, calmer situation. But it is still important for you to be close and available. Your pilot will probably be able to tell you over the radio whether you should look for a landowner to get permission to land, or whether you should come toward the balloon to grab a dropline. (If you have multiple people chasing, you might be able to do both)
 - 2a. Dropline landing: come toward the balloon so when the pilot drops the line you can grab it (your instinct may say to head for the point the balloon appears to be touching down). **GRADUALLY** slow the balloon down and hopefully bring it to a stop. Be prepared to exert as much force as you can...there is a lot of momentum to overcome. (It isn't always best to exert all your force immediately. Ask about the best technique, depending on situations!) Other crew members and/or bystanders can sometimes be recruited to help. Once it is stopped, hold it steady and let the pilot gently set it down. If you have more than one person, one can hold the line to keep the balloon still, and the other can go to the basket to put weight on upon touchdown to prevent the “bounce”.

2b. Landing without the dropline: Always approach the back (i.e., upwind side, regardless of balloon's orientation) or side of the basket. Don't get in front of it. Our smaller balloons contain 4 tons of air, plus the weight of the balloon itself and the people...so the momentum of the balloon is equal to a couple of cars moving at the same speed. Sunnyside contains 8 tons of air!

The ideal landing is for the balloon's forward motion to stop before the balloon touches down. Then the landing will be most gentle...maybe the passengers won't even feel it. The main thing is, they won't be thrown off balance, and will therefore avoid any risk of a twisted ankle or other misfortune. Most passengers really appreciate those gentle landings!

So you can take hold of the handles at the bottom of the basket and GRADUALLY slow the balloon to a stop. If you try to stop the balloon quickly, it will result in much more jerkiness in the basket, more likelihood of the basket hitting the ground and more bumpiness for the passengers. This is a big deal if we have elderly or frail passengers. It is at least a point of pride, even with young or athletic passengers.

Often with a light wind, we will be moving the balloon after landing, to get to a better place to deflate. In general, the pilot will take the weight with the burners, and you will be walking the balloon to the new position. Again, you can help make this a smoother experience for the passengers, and for the balloon itself, by helping the pilot prevent bumping the basket along the ground. If the basket bumps the ground, not only is it bumpy for the passengers, but the flame from the burner may flop back and forth, possibly catching the skirt. OH no, another burn spot!

When we lay the balloon down, it will almost always (unless the wind is REALLY calm) lay down with the wind. And the wind will be going in the direction the balloon was moving prior to landing. This will usually be true even if you don't feel wind on the ground. So we will need room to lay down in that direction. Also, as we lay the balloon down, we would like it to be "right side up". By this I mean the same way we inflate it. To get it in this position, we want the red line and the vent line on the front side of the basket. Sometimes we can get the balloon into this position as we are walking it. Other times, we need to rotate the balloon to get it in this position before we lay it down.

Miscellaneous (but important) details about leaving the truck to meet the balloon:

- Be sure to bring the radio with you. The pilot may have important instructions for you as he approaches.
- Be sure to have your gloves on.
- Don't park the truck in front of the balloon. (Often it is a good idea to park it next to a sign, utility pole, or obstacle. That way you ensure it is out of the way, and signals the pilot to stay away from the obstacle. Otherwise, parking next to the access point to the field might be a good idea.)
- Turn the truck off, and leave the key in it. (Don't lock the truck!) If the landing is

successful, the pack-up process will be getting started and it may be a while before you or someone else returns to the truck.

- Leave windows up so bugs and mosquitoes don't get into the truck.
- Don't drive the chase vehicle onto private property until we have the landowner's express permission to DRIVE onto the property. Even then, if possible, check in with the pilot first. There may be factors one or the other of you is unaware of. Communication is key!
- Ensure you know where is ok to drive—
 - Any buried lines? Wet or low spots? Septic? Crops? There may be many considerations. Communicate with pilot, and if there is any question, leave the truck, and let the pilot decide!
- Don't block the landowner's access to his property.
- Try to control spectators...we don't want them to trample crops, scare livestock, or block driveways—although, at the same time, we are glad for them to enjoy the balloon.
- When parking the truck or van in a field, be sure to turn off the engine. The catalytic converter on the bottom of the vehicle gets hot. We don't want to start a grass fire. This is especially true in August, when we often land in wheat fields that have been cleared. Dry straw burns easily! Balloons have been thusly burned up!

Deflating:

Usually, a crew person will handle the crown line as the pilot opens the top to deflate.

The main purpose of the crown line is to prevent the envelope from coming down on top of the basket in a calm wind. That line enables you to pull the balloon over on its side. The pilot will lay the basket down as the envelope is laying over. It is also possible that the crown line is a crucial tool for directing the balloon away from obstacles or hazards as the balloon deflates. Be sure you know where the pilot intends the balloon to go.

Once the envelope is on its side, your instinct will probably be to continue pulling on the crown line, hoping to push air out of the envelope. But this is counterproductive. By pulling on the crown line, you are pulling the opening of the top down, trapping air inside the envelope.

The better procedure is, once the envelope is on its side, go to the top of the balloon, gathering the crown line as you go. (We would prefer to avoid dragging the crown line through wet grass or over bare ground, getting it wet or dirty). At the top of the envelope, you can pull the bottom fabric taught, then start pulling the sides in toward the center. This GREATLY helps the pilot, passengers, or other crew or spectators who

might be squeezing the air out. One person doing this job well can reduce the effort of squeezing (burping) exponentially.

Sometimes passengers or spectators will gather with the person on the crown line at the top of the balloon. If you are on the crown, keep in mind that squeezing is where the heavier work is. Send some of those folks to the mouth to help with the squeezing.

If you are squeezing (if you're capable of squeezing, it's a great way to draw your pilot's appreciation!), encourage helpers to push air out and gather fabric ahead of you, and have one person following you to help with the weight of the fabric (he must stay close to you for this to be helpful). People will tend to line up behind you, holding fabric. But after you (the person squeezing) and one follower helping hold the fabric, all the others are contributing zero to deflating the balloon.

Once air is out of the envelope, if your balloon has a spring top, we will install the top. If it is a parachute top, we don't worry about installing it now...that will be done at the beginning of the next flight.

Stuffing/rolling the envelope:

There are as many techniques as there are pilots, probably. Any of the techniques probably work. If you have a better idea, feel free to share it! But your pilot may have reasons for his favorite method...feel free to ask about them.

Toast/certificates/heading home:

- In the age of Covid, we want our passengers to know we are considerate of their health. We may sanitize the vehicle, especially where the passengers will be sitting. We will give them their own space and try to pack our own folks – pilot and crew – in their own space. We may mask during the drive.
- Back at the launch site, we will give the passengers a friendly good-bye. Sometimes they will leave a tip, but not always.

LANDOWNER RELATIONS

Normally, of course, we don't know ahead of time where we will land. A balloon just drifts with the wind. That's why you are chasing us!

So, the owner of the property where we land doesn't know ahead of time that we are coming. He probably has not given us permission to land there (unless we have landed there in the past).

Landowners almost always are happy to have us there...if we treat their property and them with respect and courtesy.

So, if possible, your pilot will ask you to check in with the owner of the property he is expecting to land on. Your approach to the landowner is simple: "is it OK if we land a balloon on your (field, yard, whatever)??". If we have already landed, your approach is "I hope it is OK that we landed here". Most people are thrilled or at least ok with us landing. But not everyone. Occasionally, an owner is hesitant about us landing. Sometimes there is a good reason for this...maybe something is planted in that field that is not obvious, or maybe this farmer has had a bad experience when a balloon scared his cattle or damaged his crops. The most important use of the radio or phone is for you to let your pilot know of any hesitation or other adverse reaction by a landowner. In that case, if at all possible, your pilot will fly on and land somewhere else.

If a person is not receptive to us landing, or is angry or obnoxious, it is important that we not react in kind. We need to be understanding of his viewpoint, sympathetic, and just as nice as possible, to avoid escalating the situation. Again, let your pilot know immediately, and he will take the brunt of any complaint. This sort of situation occurs less than once in a thousand flights, but it is not impossible.

Most often we land on farm fields. If you are not already familiar with farm crops and livestock, make it a project to learn as much as possible about Western New York agriculture. It is very helpful for you to know the difference between a hayfield and wheat, for instance.

In general, crops in rows that are 2 or 3 feet apart, like corn or beans or potatoes, are valuable and we DON'T want to land there. Next crops we try to avoid are crops planted in closer rows (like 6 inches apart). This may be wheat or oats, or new seedings of alfalfa. If we land here, we may do less damage than in the wider row crops, but we still prefer to avoid this type of field. Finally, fields that appear to be evenly covered with grassy plants are probably hay like alfalfa or clover. These fields are often ok for landing, especially if the grass is not tall (less than 6 inches or so). The taller that grass gets, the more possible it is that the farmer considers it a bad thing for us to be tramping the plants down with the balloon, especially the chase vehicle, and some farmers would object to even walking in their hay if it is tall. The more you can tell your pilot about the field as he is looking at it from a distance, the better.

The noise of the burners and the sight of the balloon will usually frighten animals if we are too close. The most common animals we try to avoid scaring are cattle and horses. So the more you know about these animals, the better. But even if you don't know the difference between Angus and Holsteins, you will be a good ambassador for ballooning if you compliment the farmer on his fine-looking herd!

You don't have to be an expert on livestock to warn your pilot about ANY animals ahead of him that he doesn't see (i.e., "There are horses behind the barn on the other side of the road you are coming toward"). With a warning like that he will be better able to avoid scaring them.

Chapter 5: Pack-up and Retrieval

There will be differences between balloons and pilots and their preferences. Follow their lead and you will get used to them and it will be fun! Maybe the most important thing: Let me repeat: Don't drive onto private property until we have permission! If we can't locate a landowner, the pilot will make the decision whether we drive on or carry the balloon out. If we drive on, we will get the balloon packed up first. Then we will drive in, load the balloon, and drive out. We want to avoid the situation of having the vehicle on the field and the owner showing up and asking why we drove on his property without permission!

Chapter 6: BALLOON FESTIVALS and events

In normal years (other than 2020), there are 7 or 8 or 10 balloon festivals in New York State. We attend most of them, usually with the REMAX balloon. These Festivals occur on weekends, in Letchworth Park, Ballston Spa, Syracuse, Poughkeepsie, Wellsville, Binghamton, Dansville, Glens Falls, and sometimes other places. Most Festivals include flights on Friday evening, Saturday AM, Saturday PM, Sunday AM, and maybe Sunday PM and Monday AM. A Festival is a lot of fun, and you can learn a lot from watching other balloons, pilots, and crews. The Festival may provide some incentives like some food for the weekend, etc, and there is lots of friendly association with other balloonists. The main cost might involve a hotel room.

We also, on occasion, travel around NY State with the REMAX balloon.

We also sometimes travel (occasionally to more distant locations) to produce our balloon assembly program for schools or to do tethered events.

So, if you are interested in travel, you might be able to tag along on some really unique trips.

Chapter 7: General Balloon Resources

1. There is a national club of balloonists, called the Balloon Federation of America or BFA. Check out BFA.net. We recommend joining. The BFA puts out a monthly online newsletter, and a bimonthly magazine. We have old copies of the magazine that you are welcome to peruse
2. There are several local clubs of balloonists:
 - a. GEBA (Great Eastern Balloon Association) in the Eastern PA and New Jersey area.
 - b. CLAS (Connecticut Lighter Than Air Society) in the Connecticut area
 - c. NOBPA (Northeast Ohio Balloon Pilot Association) in the (you guessed it) Northeast Ohio area.
3. Each of the above clubs usually puts on an annual Safety Seminar, usually during the winter/early-spring time frame. Our pilots (Carroll, Lance, and Lee) attend or sometimes present for at least one of these each year. Sometimes our spouses accompany, which makes it a fun outing. There are seminar-type presentations, usually a trade show, and food events. Don't lose contact with us during the winter...we can keep you updated on which one we are planning on, and you are more than welcome to go with us! (Some of these also are now available online.)
4. About every three years the BFA puts on a convention...which is like the above safety seminars on steroids.
5. An excellent crew training resource: <http://www.cazooee.com/crewing/index.html>

Conclusion:

As you probably know, we are a family business. In many ways, it is a different sort of business than others you may encounter. But as you may have gathered, we enjoy it. We hope you do too.

Ballooning is not only a way for us to pay the bills. It is a way for us to express our faith in and gratitude to God for the world He has given us. We are constantly amazed at the view of nature He allows us to share.

On a deeper level, we want our business to reflect our faith. We try to run our business according to God's principles given to us in the Bible. Jesus, God's son, and God in the flesh,

died for our sins. We have accepted His forgiveness, based on His death and resurrection. We are still human, trying to understand and apply those principles. We hope we as individuals and our business are witnesses to God's grace, truth, and love. We are open and available for serious conversations about what God is doing in your life. And if you ever see anything in our lives or in our business that seems contrary to what it should be, be sure to let us know.

Up and Away,

Carroll Teitsworth

For all the Teitsworths and Liberty Balloon

Co and Balloons Over Letchworth

EMERGENCY CONTACTS:

- For medical or other emergencies, dial **911**
- Electricity emergency (i.e., power lines down—**DO NOT APPROACH ANY DOWNED LINES! ASSUME THEY ARE LIVE!**):
 - For downed lines.....**Dial 911**
 - NYSEG.....800-572-1121
 - RGE.....800-743-1701
- Letchworth Park police.....**585-658-4692**
- Poison Control.....**800-222-1222**
- Carroll cell.....**585-749-6730**
- Lee cell.....**585-749-1320**
- Lance cell.....**585-244-3467**
- Lisa cell.....**585-749-0988**
- Business office phone number and address:
 - (Same for Liberty Balloon Company or Balloons Over Letchworth):
 - **585-243-3178**
 - 6738 Barber Hill Rd, Groveland, NY 14462