STUNT KITE MANUAL

Tips on choosing, flying and maintenance of your stunt kite

by David and Nadia Sampson

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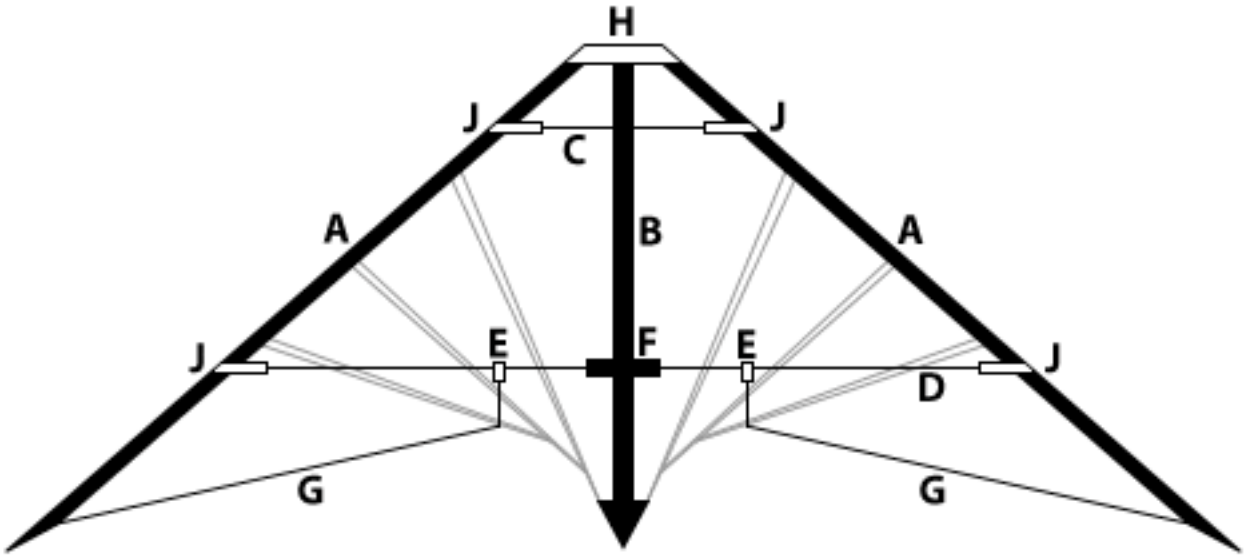
STUNT KITE MANUAL

Welcome to the exciting sport of stunt kite flying.

You are going to discover a whole new world that up to now you have probably not been aware even existed.

One thing for sure is that from the moment of your first flight, you are in great danger of becoming a stunt kite addict.

You need to be fully aware of the consequences, as we take no responsibility for the effects this may have on family and friends.



Stunt kite bottom view

Description of parts

A - Leading edge
B - Spine
C - Top spreader
D - Bottom spreader
E - Stand-off
F - Spine connector
G - Trailing edge
H - Nose
J - Leading edge connector

How to Assembly A Stunt Kite

With your back to the wind, unpack the kite and lay it out and familiarise yourself with the various components.

Insert the bottom spreader into the spine T Piece making sure the bridle lines are free.

Next secure the spreader into the leading edge connector. Again make sure no lines are tangled.

Connect the stand-offs or sail tentioners.

Insert top spreader.

Now hold the kite into the wind and make sure everything looks symmetrical and none of the bridle lines are tangled.

Connecting the Flying Lines to A Stunt Kite

Follow the sequence below to form a "larks head hitch" or "kiters knot":

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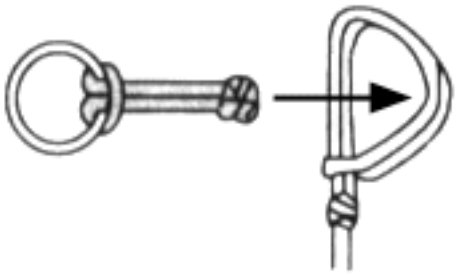

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Safety Tips when Flying A Stunt Kite

1. Safety first: apply common sense and never fly near:
   - Power lines
   - Roads
   - Airfields
   - Railway lines
   - People and animals
   - Thunderstorms
2. Remember that the flying lines are most likely to be the cause of injury as they can cut and burn.
3. Never under any circumstances hold onto the line when they are under tension, and do not wind up lines while they are still attached to the kite.
4. Do not exceed the recommended maximum wind speed for your kite.
5. Stay clear of other kite fliers in your vacinity, being especially careful not to make contact with their flying lines. The safety of both you, the flyer, and the spectator are in your hands.
6. If you disregard these rules you place yourself and others in danger of serious injury.

Choosing the Flying Area

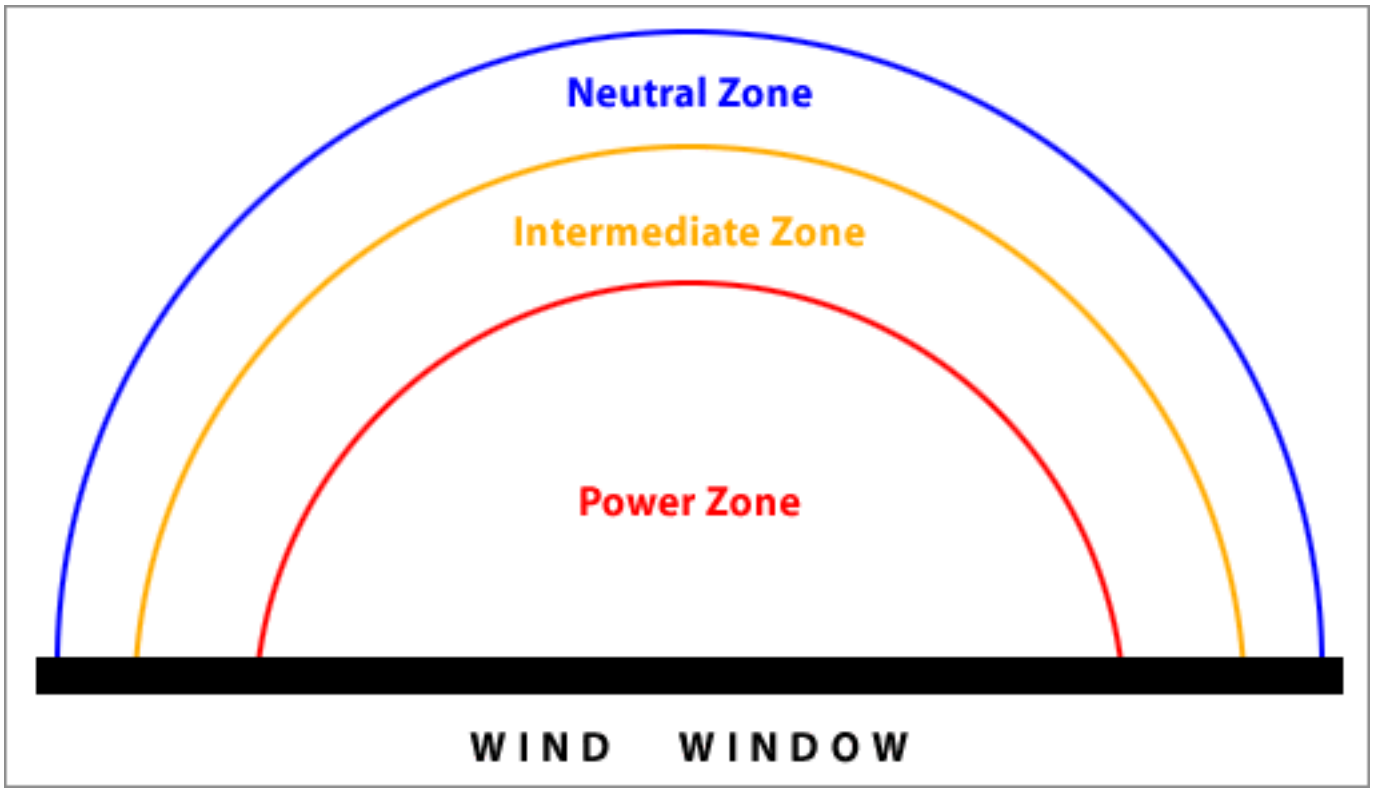
Now for your first flight!

Requirements:

- An area of at least 50m x 100m (55yds x 110yds) wide, which is reasonably smooth and soft enough to absorb some impact. (Not a car park!)
- Wind of course is an essential requirement. The ideal wind would be steady and in the moderate range. If the wind is not ideal and you experience problems, do not persist for too long - difficult though it may be, rather wait for the right conditions. Try to stay clear of trees and buildings. The turbulence from a tree/building is 20x the height of the obstacle i.e. a tree 5m (16ft) high means you will have to stand at least 100m (110yds) away from the tree to get "clean" wind.
- A helper of good disposition as you may require someone to blame if all does not go as planned!
- A hat and sunglasses are useful if the wind is blowing towards the sun.

The wind window is that space in which your kite will remain airborne, the window is a half hemisphere in front and above the flier, with a radius equal to the length of your flying line.

With your back to the wind, the area directly down wind from you and about just above the ground is where you will get the strongest pull, this is known as the power zone. This is also the best place to launch your kite especially in light wind.



Hot Tip: In strong wind and with larger kites it may be better to launch towards the edge of the window where the initial power surge will be lessened and you reduce the risk of being dragged across the ground. The space directly to your right and left and extending directly over head in an arc is known as the neutral zone.

There are two factors that affect the size of your wind window. The first and most critical is wind speed, if you are flying in a strong wind the window will expand in comparison to a light wind where the window will shrink. The second will be the length of your lines, the longer your lines the greater your wind window will be. Longer lines also make maneuvers less precise.

Kite Setup for Flying

Lay the kite on its back and unwind flying lines in the direction of the wind giving yourself clearance on both sides of the flying area.

Make sure the lines are not twisted, are of equal length, if one line is shorter than the other then the kite will always turn to that side, also ensure that the left line goes to the left of the stunter etc.

Pre-Launch check: have a quick look around you and make sure there are no obstacles or people in the kites flight path and do you have enough space behind you in case you need to back up quickly and be especially aware of any other kites in the sky.

If you have a helper ask him to hold the kite in front of himself facing you and into the wind. Now take up the slack keeping kite lines equally tensioned so that the kite launches straight up and the wind at your back. If the wind is a little on the light side wait for a gust of wind before signaling your aid to throw your stunter firmly and smoothly into the air whilst you take a step backwards at the same time.

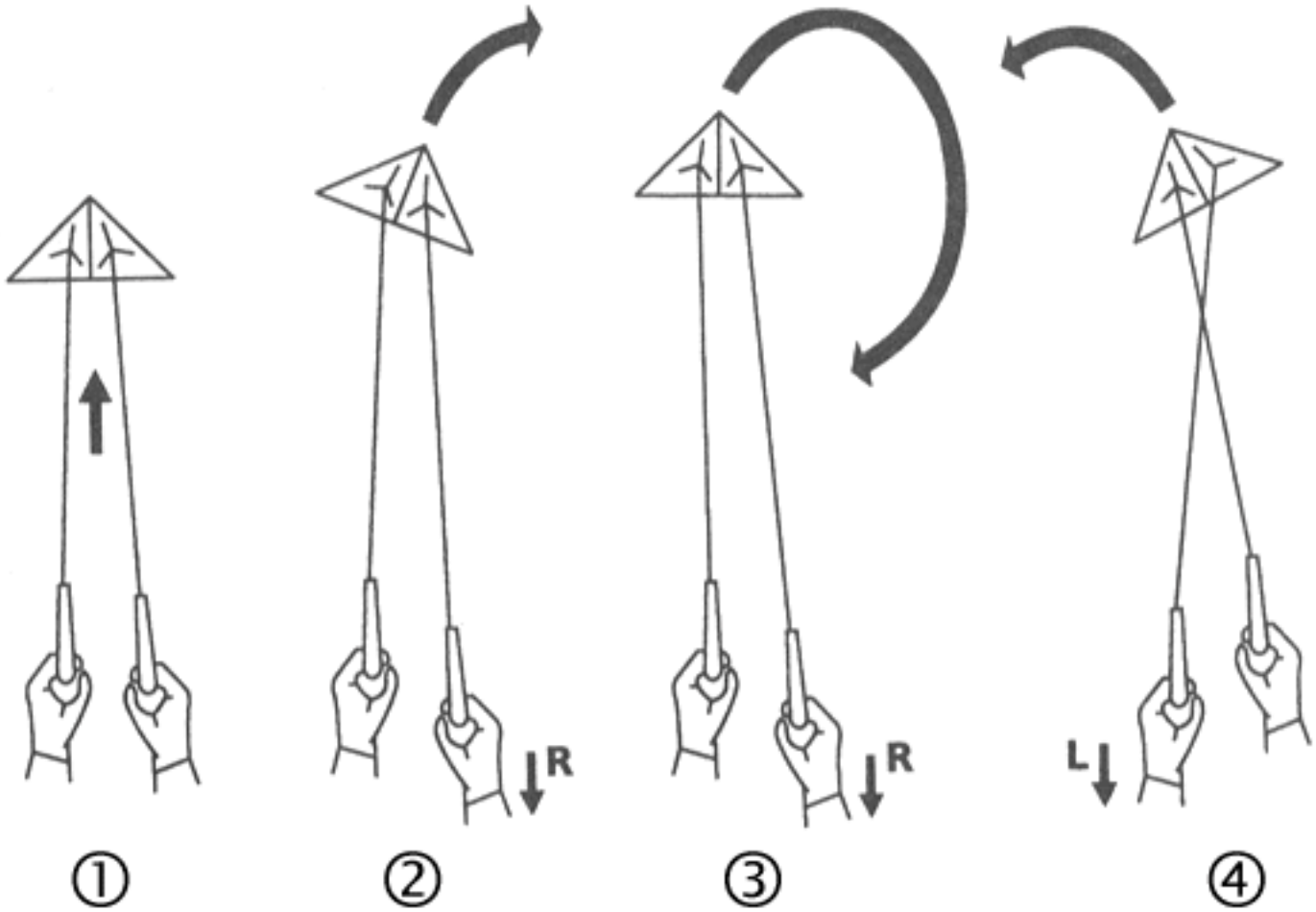
The kite will accelerate swiftly upwards without much contribution from the flier.

If you are on your own you might try the alternative of placing the flying straps/ handles over a spike (large screwdriver) and inserting it into the ground. Then place the kite directly down wind of the spike with the lines pulled taut. Stand the kite on its spine and wing tips leaning back to at least 30 degrees (to prevent the kite from launching by itself) It will now be possible to self-launch by lifting the straps off the spike and maintaining even tension on the lines stepping back smartly to launch the kite.

For beach launching lay your kite on its back with the nose facing away from you. Place a handful of sand on the sail between the stand-offs. Pick up the handles/straps and slowly take up the slack in the line. Now step backwards easing the kite into a standing position, which has the effect of removing the sand. Step back smartly, maintaining even tension on the lines, and your kite will launch.

Flying A Stunt Kite

Controlling the kite is like riding a bike! Pull the left control line and the kite will turn left. Pulling the right control line will make the kite steer right. These are known as pull turns. Once you have had a little experience in doing pull turns try doing push turns. Remember if you push your right hand forward the kite will turn left and vice versa and will turn faster than a pull turn. Even the most complicated maneuvers are just a combination of these 2 movements. If you keep the left-hand line pulled the kite will do a complete circle.



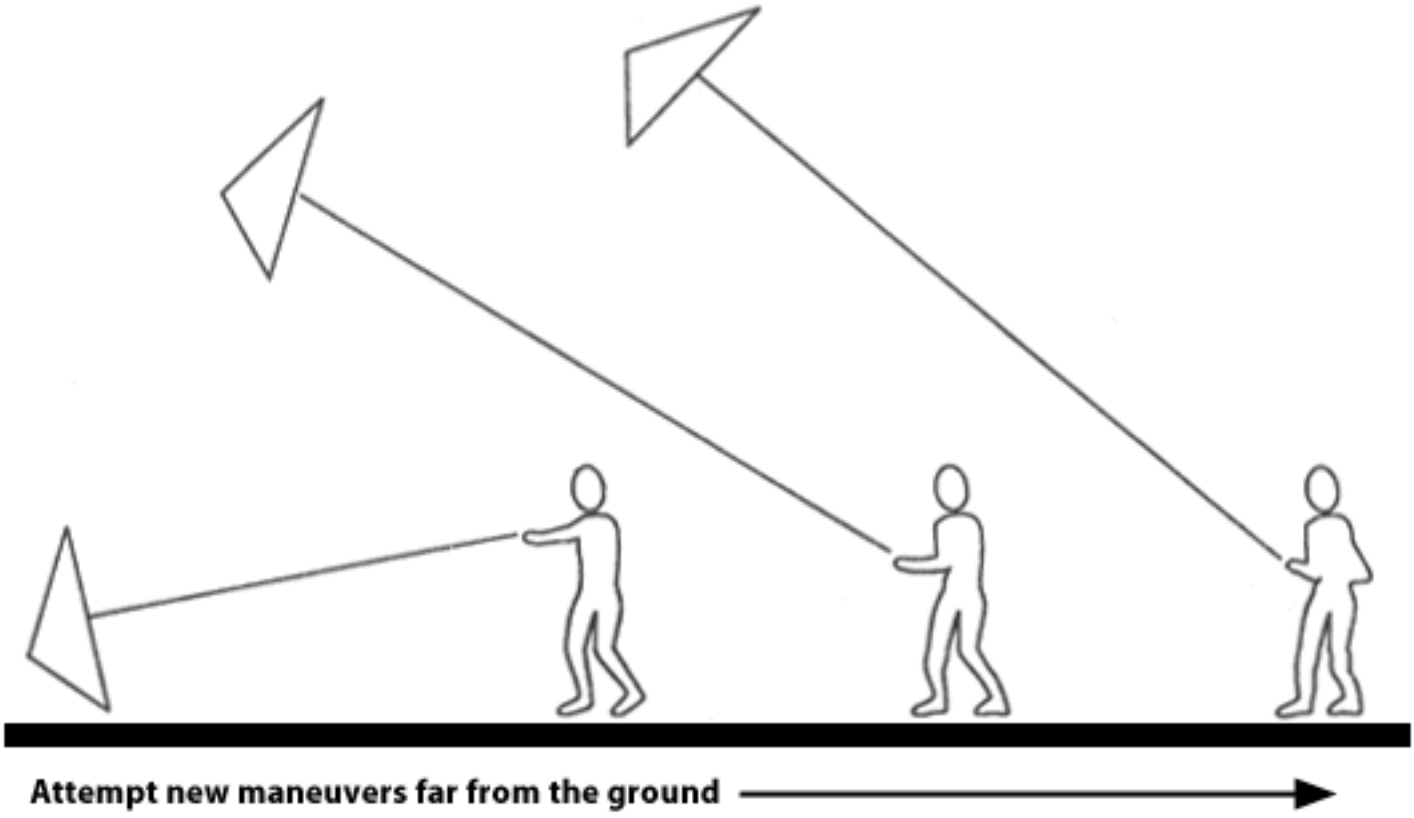
Picture above depicts what are commonly known as pull turns:

1. Even tension on lines and kite climbs straight.
2. Increase right hand tension. Kite turns to the right.
3. Maintain right hand tension. Kite describes a right hand loop.
4. Left hand tension turns kite to the left and if maintained will uncross lines.

The kite will tend to pull more in the centre of the wind window (power zone) anticipate this increase in pull and lean back to take the strain.

Line twists while flying are inevitable and are caused by turning (loops) in one direction continually. Do not panic! Up to, a dozen or more twists in your lines will have little effect on the kite or on how it flies. To get rid of twists simply turn (loop) the kite in the other direction until the twists are undone.

Remember that although stunters are designed to be highly resistant to impacts with the ground, such collisions do take their toll and in the long run will shorten the life of your new prized possession. In other words unscheduled landings at inappropriate angles and at high speeds should be avoided. Do not attempt new maneuvers close to the ground!



If at any point you think you are going to crash the kite, move forward quickly to reduce the tension and speed of the kite thus allowing it to hit the ground more gently. Do not PULL on the handles, as this will cause the kite to accelerate making things worse.

While flying keep you arms at your side, large arm movements or holding your hands high in the sky will do nothing to help your kite fly, try to keep you hand motions smooth and gentle.

Flying A Stunt Kite - Hot Tips

- Your kite is not performing properly. First check if you have assembled it correctly. Check that the bridle lines are not wrapped around any spars, and then check the bridle setting.
- Kite turns immediately into the ground on lift off. First check that the right line goes to the right side of the kite and vice versa, secondly check the flying lines are the same lengths. If one line is longer than the other the kite will always tend to turn to that side, thirdly check that your bridle settings are the same.
- The kite is very fast or very slow. The length of your flying lines can have quite an effect on the kite's performance. Short lines will result in the kite being very fast and responsive while very long lines will make the kite slow and sluggish.
- Twisted/tangled lines, caused by unwinding lines off the reel/handle in the opposite direction to which they where wound on. To get the twists out, unwind you lines completely and then starting at one end walk along the length of the line running it through your hands and easing the twist along until it unwinds completely at the other end. One way to avoid this happening again is to make sure when you first start unwinding the lines they are coming off the reel un-twisted and to keep it in your hand in the same position to wind on and wind off the line.
- Strong Winds. In very strong winds you might find it easier or more comfortable to sit down and fly.

Landing A Stunt Kite

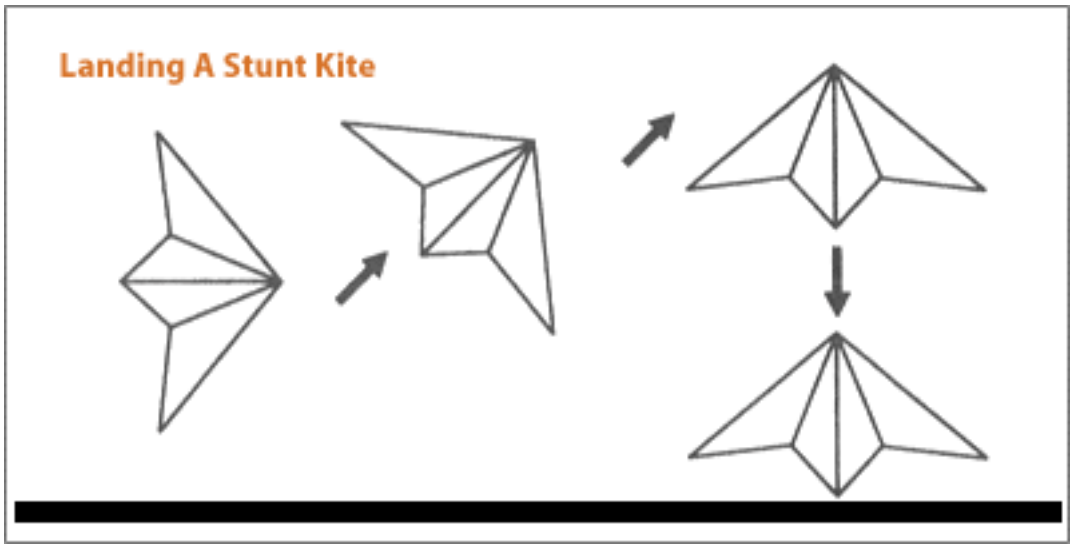
Landing the kite is not simply a matter of flying the kite into the ground! In order to land your kite successfully you will need to practice flying horizontal straight lines. Start off flying quite high, and as you improve, fly horizontal passes closer and closer to the ground. Once you have successfully negotiated low fly passes without unscheduled landings you are ready to land.

Fly the kite horizontally across the wind window towards the outer edge where it will begin to slow down.

When the kite has almost stopped, pull on the uppermost line and the kite will begin to turn.

When the nose is pointing vertically equalise the lines.

Walk forward smartly and the kite will land. Remember this is a little more difficult in strong wind sometimes making it necessary to run forwards in order to release enough wind pressure on the sail.

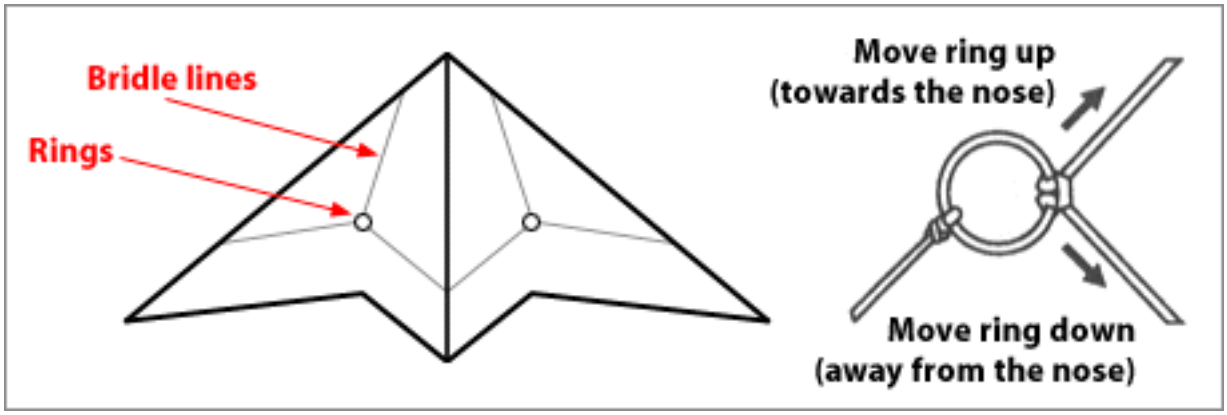


Adjusting Bridle Lines

A kite's bridles sets the "Angle of Attack" of the kite to the wind. The "Angle of Attack" is that angle at which your kite is tilted away from the flyer. The bridles have been pre-set and you should not attempt to adjust them until you have first flown the kite.

The kite wing operates efficiently in only a narrow range of angles of attack. This being approximately 4 to 12 degrees, this can best be seen by lying your kite with it's back on the floor, now take the line attachments in your hands and lift the kite off the floor, lift by the same amount with each hand. The nose of the kite should lift off the ground first and be about 8cm off the ground before the rest of the kite lifts off, this is set at about 4 degrees. If the kite lifts off the ground evenly and lies almost flat to the ground then the kite is set at about 12 degrees.

To fine tune your kite to attain its full potential is recommended and very easy to do, if you follow the instructions carefully. Mark the current setting and use this point as a reference. Remember adjustments must be made in small increments and both sides must be adjusted equally.



If you move the rings down (away from the nose) the effect will be as follows:

- The kite will turn tighter and handle better in light winds
- Speed will decrease
- Pull will increase
- Snap-stalls will become easier
- Launching will become more difficult

As you move the ring further down, any advantages will disappear and the kite will become impossible to fly with any pull on either line, resulting in an overstearing turn and stall.

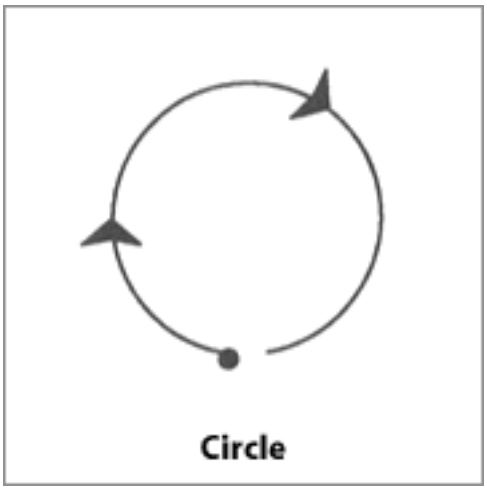
Moving the bridle rings upwards (towards the nose) will have the opposite effect until the kite will struggle to turn while having very little pull.

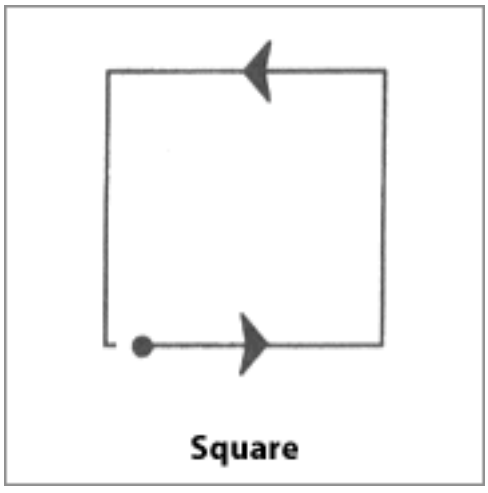
Determining the best performance of the kite will depend on you, as each person's ideal balance of speed, turning and ease of launch will vary.

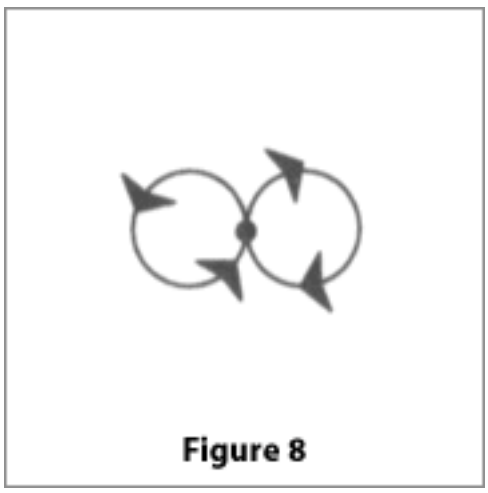
Don't be shy to adjust your kite, as with experimentation you will learn to get the best results out of your stunter.

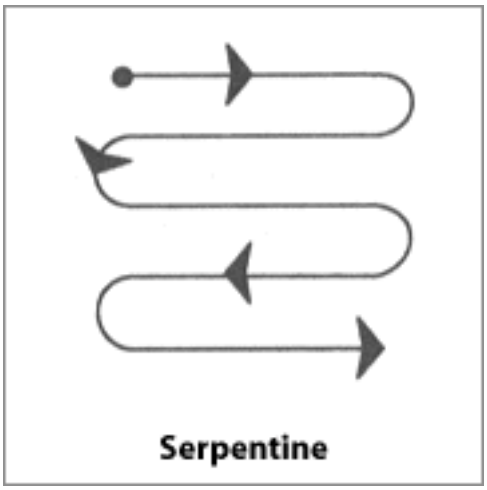
Stunt Kite Maneuvers/Tricks

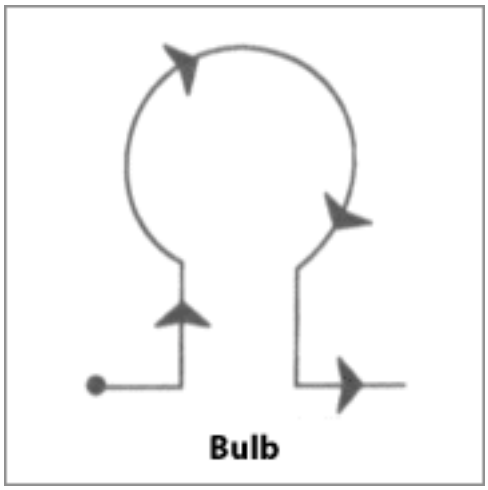
With a little practice you should be able to fly the patterns illustrated below. These can be great fun especially if flown as team maneuvers:

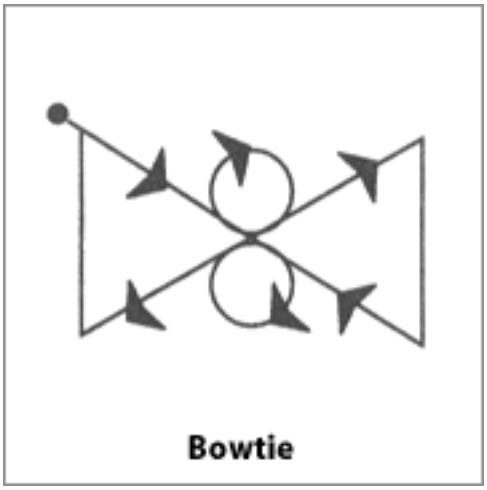


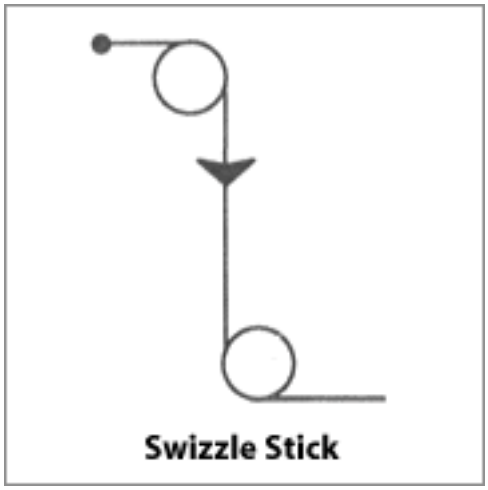


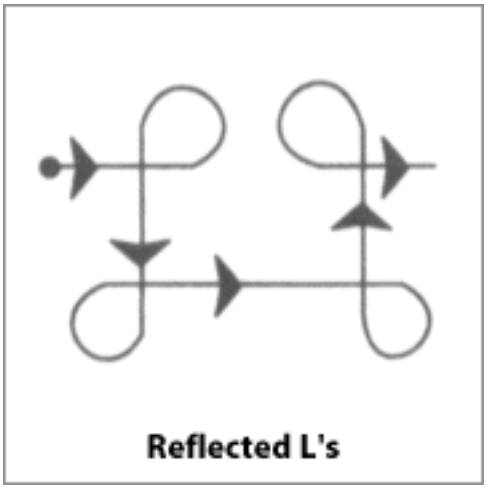












- To get your flying more accurate, remember to always watch the nose of the kite. The kite will always follow its nose.
- When flying in stronger winds the kite will fly faster and pull harder making trick flying more difficult.
- Lighter winds are better for trying out new tricks and more advanced maneuvers.

HOT TIP: Remember when trying more advanced tricks that running toward the kite or throwing your hands forward to reduce the wind will help the kite stall more easily.

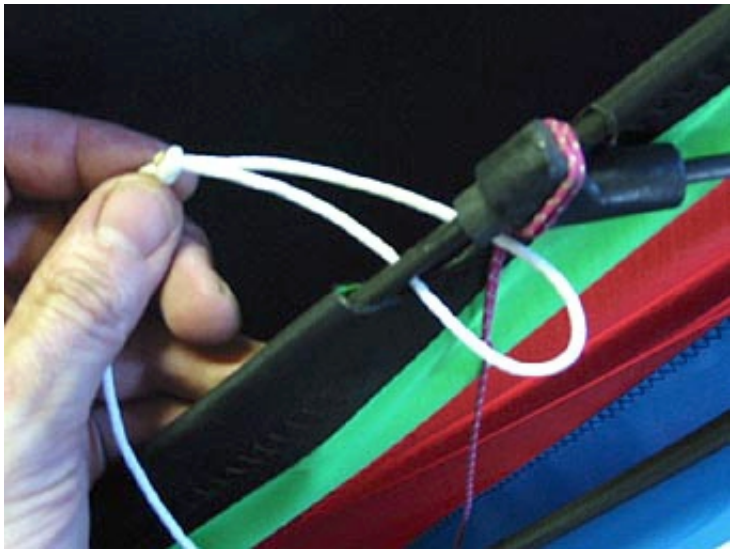
Stacking Stunt Kites

You may have seen stunters flying one above the other, from two up to as many as 10 or more. This is called stacking and results in exceptionally high tensions which can create opportunities such as jumping and skiing. Bear in mind that this has the potential to be very dangerous and unless you are keen to see the inner workings of a hospital, we suggest you venture into this side of the sport with caution.

Stacking lines for deltas consists of FIVE lines with overhand knotted loops at each end, each between 60-90 cm (24-35 in). All stacking lines MUST be exactly the same length, 80 cm (31 in) is usually the standard length. The 5 lines connect onto all the bridle connection points and then on to the corresponding points on the following kite and so on. If you find the kites jostle when in flight, shorten the length of all the stacking lines. As the number of kites stacked increases, so will the pull and you will have to change your flying lines to be able to cope with the increase in tension.

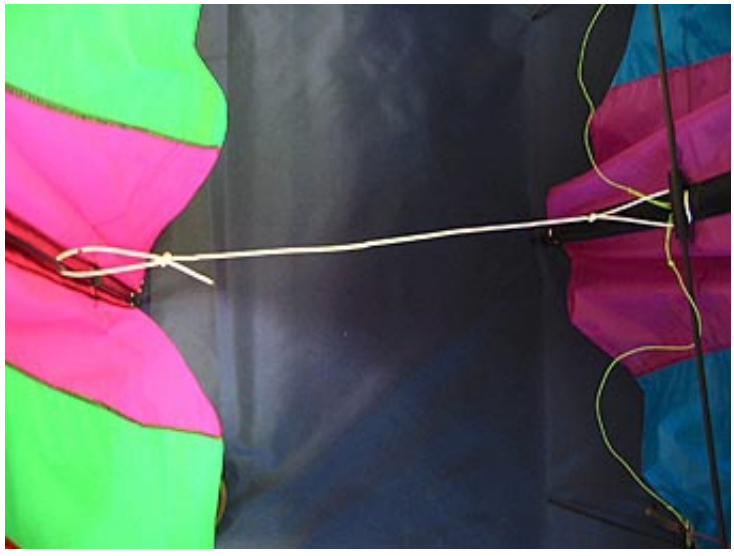
This is a very simple process if you follow the steps below and consists of attaching 5 lines to each of the bridle connection points on the lead kite to the corresponding positions on the following kite.

Set up the kites in the order you want them to fly. This system is suitable for stacks of up to four kites depending on the size of kite.

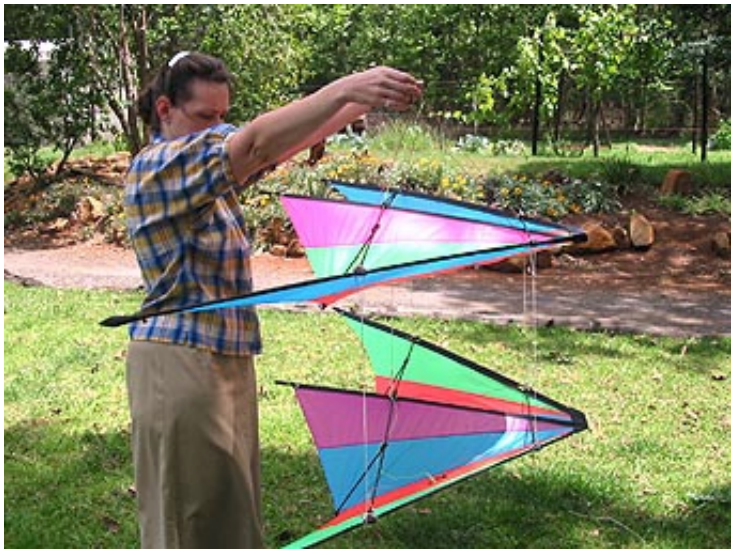


Starting with the lead kite feed the stacking line through the wing slot and over the fitting. Do this for all four leading edge connectors.

The following kite is connected the same way.



The spine line is now connected and adjusted to fit. The slipknot is then locked in place.

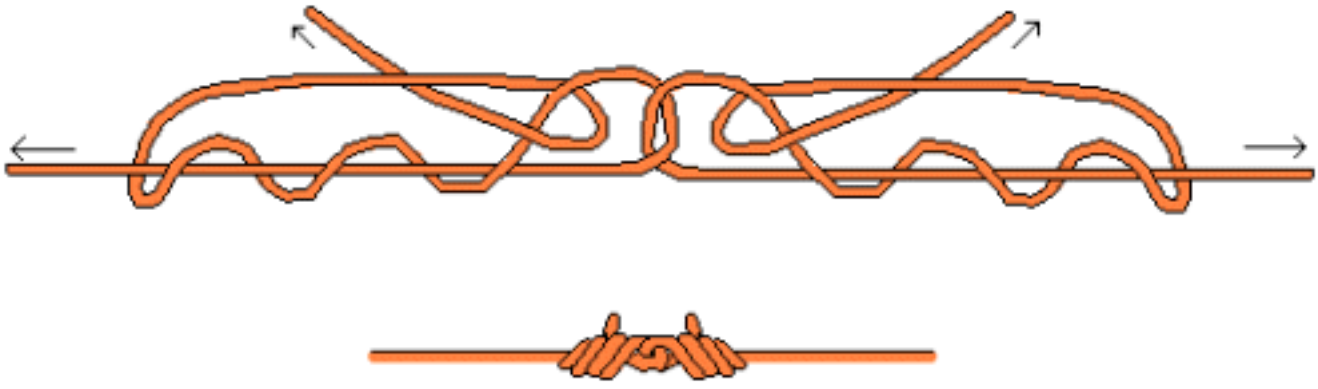


Hold the kites by the bridle loops of the lead kite and make sure all lines are equally tensioned. Adjust if necessary. The stack is now ready to fly. **Remember that kite stacks can produce a lot of power so be careful!**

Care and Maintenance

Your kite is not indestructible! Flying in extreme conditions as well as frequent crashes will take their toll. A few simple measures in caring for your kite will ensure many years of enjoyment.

- Stay away from obstructions such as barbed wire fences, trees and poles etc.
- You will soon find that dogs have almost the same enthusiasm for kites as fliers do - but remember the dog usually has more destructive ideas in mind. It may be fun to tease the dog but what goes up must come down and he will be waiting!
- Clean your kite with a trickle of cold water and never use solvents, as this will remove the protective coating. It is imperative to clean your kite if it has been for a swim in the sea. Salt, even in the form of airborne spray, can play havoc with rubber fittings and reduces the performance of the fabric.
- The kite should never be packed away wet.
- Do not leave you kite in a hot car. Temperatures can reach levels where plastic fittings melt and damage can occur to fabric and spars.
- When taking a break from flying, place your kite in a shaded area as prolonged exposure to ultra violet light deteriorates the fabric and fades the bright colours.
- After flying check for worn spots, frayed bridles, popped stitches and the like. This may prevent major repairs later. Bear in mind that we do offer a repair service and carry a full range of spares.
- Broken lines can be repaired, however be aware that fixed lines are reduced in strength by about 50% so be cautious when flying in strong winds. To join a broken line do so by using a fisherman's knot.



Fisherman’s Knot

Choosing and Buying A Stunt Kite

Beginner Kites

These are generally small kites with a wide wind range. They are supplied with 30-40kg line on handles and do not generate a great pull. These kites are easy to fly, forgiving and with the tough fibreglass frame, very durable. Suitable for all age groups. Examples: Tomcat, Helta Skelta, Meteor.

Intermediate Kites

These can vary considerably in size and can be flown in a wide wind range. They are designed mainly for good all round smooth performance. Supplied with Dyneema lines and wrist straps. Straps being more comfortable when flying these more powerful kites. The framework for this range of kites can be fibreglass and/or carbon fibre. Examples: Streaker, Tornado, Skydancer, Phantom.

Advanced Kites

These kites are designed to suit very specific conditions and are designed for advanced performance and trick flying. Supplied with Dyneema lines and straps. The framework is carbon fibre. This type of kite is best suited to the experienced flier.

Parafoils

These types of kites vary in size considerably. There are kites for youngsters that do not pull too hard and then the bigger kites designed for power kiting and can be used for buggying, kite landboarding and water re-launchable foils specifically for Kitesurfing. Examples: Virus, Skyno, Tramp, Vortex.

CONCLUSION

This short manual on stunt kites is only an introduction to, sport kite flying. We would like to wish you many years of enjoyment and if you have any questions, please do not hesitate to contact us - click **here**.

You can buy a Stunt Kite online right now at www.hiflykites.co.za. See you there!

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