

Dodd's Flight School Instruction - On Line



[Training and Tips for Dual Line Sport Kites](#)

[Sport Kite Material Components](#)

[Skin / Sail](#)

[Frame \(Spars /Sticks/Rods\)](#)

[Bridle](#)

[Skill Levels](#)

[Beaufort Wind Chart](#)

[Basic Control](#)

[Straight Line Tracking](#)

[Over steer](#)

[Speed](#)

[Pull](#)

[Power Zone](#)

[Edge](#)

[Inside / Outside Hand](#)

[Basic Maneuvers](#)

[Basic Launch](#)

[Pull Turns](#)

[Push \(Punch Turns\)](#)

[Basic Landing](#)

[Intermediate Maneuvers](#)

[Snap Stall](#)

[Spin Stall Landing](#)

[Leading Edge Launch](#)

[Side Slide / Skating](#)

[Wingtip Stand](#)

[Cartwheel / Flip Over](#)

[Vertical Snap Stall Landing](#)

[Spike / Stab](#)

[Fly Away](#)

[Advanced Tricks](#)

[Pancake](#)

[Belly Launch](#)

[Axel](#)

[Spin Axel](#)

[Coin Toss](#)

[Axel Takeoff](#)

[Half Axel / Cascade](#)

[540 Flat Spin \(Belly Twist\)](#)

[Tricks: Note about tricks...](#)

Training and Tips for Dual Line Sport Kites

Sport kites, also known as stunt kites, are capable of performing graceful loops, precision turns, and slack line tricks. Sport kites come in a variety of sizes, shapes, performance and price. With the proper guidance from this manual, Dodd's Flight School Video, and your local kite shop, sport kites are easy to fly learn and master. For some it is relaxing pastime, while others will enjoy the competitive side to this sport.

[<< back to Top](#)

Sport Kite Material Components

Skin / Sail

This refers to the material that makes up the surface of the kite. There is a wide variety of materials, but to simplify things we will only be dealing with a few.

Ripstop is a woven fabric that resists tearing. Ripstop is most commonly available in nylon, but polyester is become more popular. Another type of nylon sometimes used is Carrington. Originally used in spinnakers for racing yachts, Carrington has special stretching characteristics which kite designers use to the kite's advantage through special panel design and placement. Polyester's is a film laminate, and it resists ultraviolet fading by five times longer than nylon and has 40% less stretch. What's the catch? The price of kites using this material cost more than ones using nylon. Ripstop is graded by weight, ounces per square yard. 3?4 oz / sq. yard being the most common. 1?2 oz would refer to the lightest.

[<< back to Top](#)

Frame (Spars /Sticks/Rods)

These are materials give shape to the kite. Rods or sticks in a kite make up the frame. The most common materials used in Sport kites are solid fiberglass, pultruded fiberglass (pulled hollow), pultruded carbon graphite, and wrapped fiberglass and carbon graphite. Advanced materials like polymer resin are used to make pultruded carbon and wrapped graphite rods. Frames can be highly specialized. Carbon can be designed thin and light so as to enable indoor flight, or strong and stiff to prevent destruction in extremely windy conditions. The sport kites in this manual are measured in millimeters and inches. A .2200 rod is the equivalent of a 5.5mm rod. And a .2300 rod is the same as a 5.9/6mm rod. The numbers indicate the measurement of the outside diameter.

Bridle

These are the lines which are attached to the sport kite frame that your flying lines are connected to. The bridle governs the angle of attack of the kite in relationship to the wind. Most bridles can be adjusted and should have a reference mark set by the factory as a starting point. Most bridles also have an inhaul line which runs from the center tee of the kite to the top spreader. This line is usually adjustable. A fixed or nonadjustable out haul line runs from the bottom spreader area to the tow point. Moving the bridle to inside point causes the kite to turn faster, this is the advance setting. Adjust to the middle knot on the outhaul line will cause the kite to turn wider. This is the beginner setting. Your bridle will have a mark where it should be adjusted to now. This is your reference/starting point. By moving the bridle point forward towards the nose of the kite, the nose is brought closer to you causing the kite's angle of attack in relation to the wind to change. This allows more air to escape via the trailing edge. The result of this adjustment, larger turning radius, increased forward speed and less pull. This setting is good for low and high winds. Moving the bridle point down or away from the nose produces a harder pulling more responsive kite. This is the optimum setting for precision and tricks.

The bridle is your friend. I normally like to adjust my kite heavier (nose away) and then adjust in small increments of 1/8" at a time until it fly's the way I like it. If your kite does not lift, move the bridle up. If the kite launches but falls out of the sky when turning, move the bridle down. Experiment.

Skill Levels

This will be indicated in the information box located with each kite offered.

B=Beginner. Kites with this rating are easy to fly and are suited for first time fliers. A word of caution - sometimes kites receive this classification because of price, not on ease of use.

I=Intermediate. A flier who can launch and fly around without too much trouble with an occasional crash.

E=Experienced. A pilot who understands sport kite launches, landings, and rarely crashes.

A=Advanced. Usually a very experienced or master class competitor.

Beaufort Wind Chart

| Mph | Beaufort | Observations |
|-----|----------|----------------------------------|
| 0-1 | 0 | No wind, smoke rises vertically. |
| 1-3 | 1 | Wind direction shown by smoke. |

| | | |
|-------|---|--|
| 4-7 | 2 | Flags flap lazily, leaves rustle. |
| 8-12 | 3 | Leaves and small twigs in constant motion. |
| 13-18 | 4 | Flags extended, small branches move. |
| 19-24 | 5 | Branches and small trees sway. |
| 25-31 | 6 | Large branches move. |
| 32-? | 7 | Why fly? Watch Flight School on DVD. |

[<< Back to Top](#)

Basic Control

Straight Line Tracking

This is the ability of the kite to fly a straight unwavering line across the window. The kite's tracking ability is affected both by the sail design and bridle setting. The fliers tracking ability is affected by how much he or she practices.

Over steer

While adjusting your bridle, move the nose away from the bridle point by 1/2 inch and then fly your kite. Notice when you spin, the kite will continue to spin even though you've stop the spinning command. This is oversteer. Some fliers like it, others don't. It can be used to your advantage and be adjusted to the amount you like.

Speed

Sport kites can achieve very fast speeds. Larger kites are usually slower and easier to handle. Smaller kites in a high wind are fast and demand greater reflexes. Bridle adjustments can slow a kite down but this also increases the pull. The use of Wind Tamers (screens) or vented kites can slow a kite down and reduce the pull in higher winds.

Pull

This is directly related to the wind speed, bridle adjustment and sail area of the kite. More pull requires a heavier gauge line.

Wind Window

An imaginary arc about 120 degrees in front of you which your kite will fly. This area grows and shrinks depending upon the strength of the wind. The kite you are flying, your skill level and any obstructions which are behind you can also affect the size and workability of your window. Rule of Thumb - The wind requires a distance of seven times the height of an object before it begins to smooth.

Power Zone

This is the area directly in front of you (down wind) in your wind window. This is where the kite has its best speed, maneuverability and most pull. This size of this area is also affected by the wind speed.

Edge

The imaginary line in the sky that defines the limits of the wind window. It is the farthest out point extending from your left side, over your head and over to the right of the wind window. To find the edge, fly your kite to the side or overhead. The kite will slow down and then stop and hover as it reaches the edge.

Inside / Outside Hand

Fly kite horizontally cross center window. If the kite is on the left side of the window, your right hand is called the "inside hand" because it is closer to the center of the wind window and your left hand is called the "outside hand". This will be used through this manual. Always pay attention to where your kite is in relation to the center of the wind window.

[<< Back to Top](#)

Basic Maneuvers

Basic Launch

Attach flying lines to the kite and unwind your lines ensuring there are no tangles. With the kite down wind from you, gently pull back on both lines equally until kite rests on both wingtips. Lines taut, arms extended, ensure left line is in your left hand and attached to the left bridle, simultaneously pull back and down in a smooth motion with both hands while stepping backwards. The kite will rise in the air. Launching in light winds will require more effort on the part of the flier.

Pull Turns

The direction of the kite is determined by pulling the right or left line. Once the kite is launched, fly to the top of the window. Pulling on the right line will cause the kite to turn clockwise. Whenever you initiated a pull turn with one hand, DO NOT move the other. As the kite makes the turn and the nose points up, release your right hand, making both hands side by side again. The kite will fly straight up. To make left turns do the opposite hand movements.

Push (Punch Turns)

By releasing the opposite wing in a turn and then pulling it back into position, the kite will make the turn faster and the kite will lock in for an angular turn and straight tracking. Simply fly the kite "to" the top of the window and push forward with the right hand and release to the neutral position. The kite will turn left. The push doesn't have to be fast, but the emphasis of this move is on the release to a neutral position. The release to neutral action is what brings the pushed wing back into position to give the angular turn. Try push turns with both hands and practice large squares in both directions. Combinations turns are the basis for all advanced maneuvers. It combines the push and the pull turn which cause the kite to react quickly.

Basic Landing

Now that you can turn, fly straight lines to achieve boxes, practice flying straight lines horizontally. As you get better, try horizontal passes closer and closer to the ground. Now it's time to land. Fly your kite horizontally across the wind window close to the ground. As the kite nears the edge of the wind window it will slow down. When it stops (reaches the end of the window), simply pull on the inside line and release to

neutral while simultaneously walking forward. This will release pressure on the sail. When the wingtips become parallel with the ground, extend both arms forward and the kite will land. In high winds you must release more pressure in the sail by both a faster hand movement and walking or even running forward towards the kite.

[<< Back to Top](#)

Intermediate Manuevers

Snap Stall

This is a very important move to learn. It is the basis for many other "tricks". To make this easier, I've divided the Snap Stall into two simple steps.

Step I - Fly kite horizontally across the wind window until it stops. Pull only the inside hand and release or push to neutral quickly. This will cause the kite to stall wings parallel. Do not move your outside hand, keep it neutral.

Step II - Now that you have the Stall, let's make it more dramatic. To do this you need to have more pressure on the sail. Repeat step one but try your Snap Stall a little further into the wind window using a more exaggerated action. Almost at the same time you're pulling and releasing with your inside hand, punch and release to neutral aggressively with your outside hand. This will help stop the stall and hold it, making the move dramatic. If you do this close to the ground and move forward after the stall, you can land the kite.

Spin Stall Landing

Fly kite horizontally across the window about 15 feet above the ground until the kite slows from reaching the edge. Pull back slow the inside hand causing the kite to rotate. Just before the wings become parallel during the spin, release or punch back to neutral causing the kite to stall. To land, simply do the same move close to the ground and walk or run forward. Do not move the outside hand.

Leading Edge Launch

Kite is launched from its side (leading edge). Fly to the edge of the wind window, close to the ground, left to right. Pull right and land the kite on its right leading edge. Be careful that the kite doesn't tip over onto its left leading edge. Pull left (up wing) slowly until it begins to fall towards you. Tug the left line and almost at the same time tug with the right. The kite should lift off. Stepping backwards during this maneuver will help.

Side Slide / Skating

Kite stalls across the wind window sideways. Fly to the right edge of the window until the kite slows down Pull with the outside hand opposite of the spin landing but release early. When the wing tips are parallel to the ground, this will cause the kite to slide. Steer with the outside hand. It is important to only move the outside hand and keeping the inside hand at neutral. Some kites slide better than others but a heavier bridle adjustment can help.

Wingtip Stand

With the kite landed on the edge of the wind window, be sure that the inside wing is about one foot closer to you than the outside wingtip.

While keeping some tension on the inside wing, pull slightly on the outside wing until it starts to lift. Practice balancing the kite on one wing tip.

Cartwheel / Flip Over

With the kite down wind on its nose just inside center, belly pointing towards you. Practice rotation from one wing to the other to get the feel of it. Pull inside hand a little while pushing the outside. Now, remember to always rotate toward the center for the Cartwheel. With both hands, push to allow the kite to lay back a little. On the outside edge of the kite, nose on the ground pointing in, pull the outside hand while pushing the inside hand. As the kite rotates its edge should start to go up onto the outside wingtip. As the inside wing starts to rotate around, finish the move by pulling slightly on the inside wing until the kite ends up on both wing tips.

Vertical Snap Stall Landing

Fly kite nose down towards the ground about 5 feet above the ground, initiate the snap stall only this time you must pull a little more with the inside hand to allow the kite to rotate until the wings are parallel to the ground. If it is done fast and correct, little forward movement is necessary.

Spike / Stab

This is basically a Snap Stall variation whereby the kite goes from a fast forward speed into a wingtip stand very quickly. As a result the wingtip is forced into the ground for a dramatic affect. Although some kites spike better than others, try the following. Fly you kite horizontally close to the ground. As it passes center, pull the inside hand while simultaneously pushing inside hand. This causes the down wing to come towards you causing the kite to "spike" into the ground. Try this a few times above the ground until you see what I mean, then fly nearer to the ground and Spike It! Then try spiking from different angles.

Fly Away

Used to gain ground in light wind or indoor flying. Fly the kite to the top of the window. Turn the nose down and push both hands forward while walking forward. The kite will glide down on its belly. Watch the pitch of the nose. If you over control the angle of the nose relative to the wind, the kite will stall out and fall.

[<< Back to Top](#)

Advanced Tricks

Pancake

Landing the kite with the nose away from you on its belly. With the kite overhead, turn the nose down. Just before the kite reaches the ground, push both hands but with a little more emphasis on the right hand. This will cause the kite to rise off its belly to your left. This trick works best in lighter winds.

Belly Launch

Kite is launched from a Pancake position. If the wind is over your left shoulder, then pull with both hands but with a little more emphasis on the right hand. This will cause the kite to rise off its belly to your left. This trick works best in lighter winds.

Axel

It is very important to achieve a perfect and long Stall resulting from a Snap Stall. Once you do that it's time to attack the Axle. Fly to the left edge of the wind window about fifteen feet above the ground and execute a good snap stall on the edge of the window. Slightly push your outside hand forward while maintaining a stall with the wing tips still parallel to the ground. Pushing your outside hand changes the angle of attack on the kite so when you now pull that same line towards you, you are actually pulling the top part of the bridle thus pulling the nose towards you. The belly of the kite which is usually facing you will now be facing the ground as it goes through its rotation along that axis. At the same time that you "pop" with one hand you have to give slack to the inside line. This will allow the wing to rotate. As the kite goes through the Axle both lines must be slack. Once the kite comes all the way around, put tension on both lines by pulling on them at the same time.

Note: To really learn the Axle easily, watch it on Flight School Video II and III.

Spin Axel

Simply initiate a up or down spin on the edge of the wind window. As soon as the wings become parallel, "pop" the Axle. This is a very graceful move that works great during a ballet routine. Being a two part move just match it up with two beats in a song.

Coin Toss

From a wingtip stand, let the nose rotate a little past center and then sharply pull the outside and push or release with the inside hand and the kite will "half axle" either into an opposite wing tip stand or take off depending on the amount of force and timing used.

Axel Takeoff

The kite takes off in one smooth motion into an Axle. With the kite landed near the edge of the window, pull the inside wing towards you about 6 inches. Now with both wingtips on the ground, pull the inside wing sharply causing both wings to rise off the ground. Once the wings are clear, pop the axle with the outside hand. This can also be done starting with the outside hand.

Half Axel / Cascade

Similar to the Coin Toss, only done in the air. This is a great way to change directions quickly. Fly horizontally towards the edge, when the pressure in the sail is reduced, pull sharply on the inside line while releasing the outside and the kite will do a half axle and change directions. As soon as the nose points inside, pull sharply the outside hand while releasing the inside hand. Do this repeatedly while walking forward. This is called the Cascade. To help you learn this move, refer to Flight School III.

540 Flat Spin (Belly Twist)

This is a move that causes the kite to go into an axle type spin from a pancake type maneuver above the ground. Fly the kite nose down near the edge of the window. Just like a pancake, push forward with both hands to flatten the kite with the belly towards the ground. Smaller kites do this very well if you accelerate the kite first by pulling back with both hands and then punching them forward. With the kite near the edge of the window, slightly point the nose towards the center to give a small angle to the kite. As you push quickly forward, abruptly stop the outside hand. When the kite starts to rotate, extend the outside hand again to allow the second rotation while moving forward. The kite's first rotation is 180 degrees and the second is 360 totaling 540 degrees.

Tricks:

New one are being thought of all the time. Most come out of mistakes that are done over and over until it becomes a trick. You may even come up with some of your own! Some of the names that are used vary from region to region. An example would be the Skate versus the Side Slide. They are the same maneuvers just called different names. Just remember to keep exploring the envelope and have fun!

[<< Back to Top](#)