Chapter 3: Magic Maneuvers: Flying Introductory Figures

Not every flier is driven to compete. That's fine. But just because you don't want to perform for judges is no reason to avoid rulebook figures.

Flying competition maneuvers is an excellent way to test your skill and improve your ability. The best advice we can give you is to PRACTICE. Study the figures, know the rules, and watch the other fliers for new ideas. Then PRACTICE MORE.

If you're ready for events run "by the rules", your self-confidence, practice, and ability will prepare you for almost any kind of flying you're likely to encounter.

So let's take a look at some of the "official" maneuvers. Start with the easy ones and work your way up. And remember, like we've been saying all along, finesse, precision, and delicacy of control distinguish an expert sport kite flier. That's the secret for getting these figures perfect.

Good Luck!
Infinity Downwards: X marks the spot - that’s the key to flying a good infinity. Three times during this quick maneuver, you are going to cross the same place in the sky just below the center of the window. Identify this target before you begin and fix it in your mind.

The other thing to notice is that this figure is made up of circles connected by diagonal straight lines. Don’t make the common mistake of flattening those circles into ovals. Keep them nice and round, especially when you fly around the outside edges.

Start near the bottom left corner of the window. Begin a low horizontal pass toward the center and very close to the ground. Then turn up at a forty-five degree angle directly toward that target in the sky. Just before you reach dead center, call “IN”.

Continue flying straight as you climb. Now visualize a perfect circle that nearly fills the right side of the window. As your straight line intersects the circle, begin a smooth pull turn with your right hand. Start to fly that circle you just visualized.

Your speed will vary as you change altitude or move in and out of the power zone. After you go over the top, move forward to decrease speed. As you complete the lower turn and return to diagonal, move back to increase power.

Be careful as you turn under on the right side. Your wing tip will be flying very close to the ground. As you continue curving up, straighten out and fly directly back toward the target point. This will be a long, straight line, so concentrate on avoiding any shaking or “wobbles” in your flight. You may need to move backwards to maintain speed as you climb.
Listing distances as percentages of the wind window may sound confusing, but since the size of the window changes according to the wind, your kite, and the length of your flying line, percentages and proportions are the only really accurate measurements.

If it helps, go ahead and think of these measurements as feet. Under “average flying conditions”, that’s what they are designed to be. But remember, anything out of the ordinary will change the measurements, and in competition, percentages are what will count.

Now begin your second circle. You want it to be a mirror image of the first one. Use a smooth pull turn with your left hand and remember, move forward to decrease speed as you go over the top; move back to increase power as you fly the bottom of the circle.

Again, keep the circle round, and be careful as you turn under on the left. Misjudging the curve could require a sudden correction to avoid ground contact, and sudden corrections are very apparent.

After curving under, straighten out and fly directly back toward the starting point. You are changing from curving to straight flight again. Bring your hands together, and focus on finding that target in the sky. Your objective is to cross the long diagonal in the middle, at exactly the same place as you started. When you get there, call “OUT”. And smile!

**1. INFINITY DOWNWARDS**

![Graph of INFINITY DOWNWARDS](image)

**Competition Spacing:** Circles are sixty-four percent the height of the window. The top is seventy-two percent above the ground, which means that the bottom is at eight percent altitude. Each outside edge is eighty-two percent away from the center of the window.

Diagonal lines are all perfectly straight. They begin and end thirty-five percent from center and cross in the middle of the window at forty percent altitude. Lines begin ten percent above the ground, and end at sixty-five percent altitude.

IN and OUT should be called at exactly the same location in the sky, directly in the center of the window where the lines bisect each other at forty percent altitude.
Square: Here is your chance to put those push turns to work. All you need to do is four corners, and four straight lines. Everything is in the power zone so it should be easy.

Notice that two of the lines are equal in length - the ground pass and the vertical climb. Measure them right and your final horizontal pass will cross the first line, the vertical dive, at exactly the right point.

Start high on the right edge. Fly straight across the top of the window and then turn down about one-third left of the centerline. Measure this distance carefully in your mind. If you start in the wrong place, your figure won’t be centered in the sky. Flying a sharp, ninety-degree corner to enter the maneuver won’t get you any extra points, but will put the judges in the right frame of mind for what’s to come. Notice that the maneuver starts at the very top of the window. Call “IN” as soon as you turn down.

Track straight toward the ground. Your objective here is to minimize any side movement. If you have started on a straight line, perpendicular to the ground, all you need to do is keep your hands even and establish the pace that you want to maintain throughout the maneuver. Since you are in a downwind power-dive, you should move forward to slow your speed.

As you approach the ground, prepare for a crisp, ninety-degree corner. There will be a short delay between when you start the turn, and when it occurs, so start your turn a micro-second early. Punch your right hand forward, then pull it back to complete the turn.
The result you want is a sharp corner that will send the kite back toward the right side of the window with the bottom wingtip just above the ground.

Because of the effects of gravity, your kite may have a tendency to drift toward the ground during a low horizontal pass. Maintain a light “up” pressure by holding your left hand slightly back from the right.

Concentrate on remaining perfectly parallel to the ground. You may need to step back to maintain the same pace that you established on your first dive.

When you have flown nearly one-third the way past center, initiate another left turn by pushing with your right hand. Remember that there will be a delay before the turn, so start early. Move onto a line parallel to the first vertical dive. Climbing is slower than diving, so step back to maintain your pace.

When you have climbed past center, begin your last push turn. If you have measured correctly, the climb will be the same length as the ground pass.

Now all you need to do is fly straight and parallel to the ground as you cross over the path of the first vertical dive. Maintain a slight “up” pressure on your right flying line. That completes the square, but you aren’t done yet. Keep flying straight a few feet longer. The figure isn’t finished until the diagram says it is finished. When you reach that point, then you can call “OUT” and relax.

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**2. SQUARE**

*Competition Spacing:* All vertical lines are thirty percent off center. The square begins in a dive ten percent down from the top of the window. The bottom horizontal line is ten percent off the ground, and the top horizontal is at seventy percent altitude. The figure ends fifty percent left of center.
**Ladder Down:** Careful mental measurements are the key to the Ladder. Divide the sky into four equal slices, then fly the horizontal lines that separate each of them. If your slices are too big, you will run out of space before you reach the ground. If they are smaller than needed, you'll have too much room left over.

Notice that the turns connecting each slice are tight curves rather than angles. Try using the pull-pull technique. Anticipate the turns and don't pull out too soon or too late. Either mistake will throw you off-line and your corrections will be obvious. Your objective is a series of four, perfectly spaced, parallel lines.

Generally, each horizontal pass is designed to be roughly two kite widths apart. But that depends on the size of your kite, the length of your line, and the strength of the wind.

Start high on the right edge. Fly straight across the top of the window and then turn down at the point half way left of the centerline. The figure starts at the top of the window so call “IN” right away.

Begin a curving left turn by pulling back on the left line. Start releasing from the turn before the nose and spine of your kite have come parallel to the ground. Otherwise, you will oversteer and come out of the turn at a much higher angle than planned.

Fly out of your first turn parallel to the ground and headed toward the right side of the window.

*Here is an important note: When we talk about turning right, we mean the kite’s right. The kite may angle up, go into a loop, or actually fly toward the left side of the window. But right always means the kite’s right and left means the kite’s left. Don’t get confused.*
Keep your flight path straight and avoid any shaking or “wobbles”. Because of the effects of gravity, your kite may have a tendency to drift toward the ground. Maintain a light “up” pressure by holding your left hand slightly back from the right. Concentrate on remaining perfectly parallel to the ground.

When you have crossed the center of the window and flown almost half way across the other side, begin your second turn. Pull-right to turn under. Pull-left to recover and bring your hands even. Pulling powers you into the turn. Pulling again powers you out of it.

Remember to anticipate so you don’t oversteer, and move onto a second parallel line. Now all you have to do is repeat the process two more times. Your third turn should occur directly below the position where you originally turned into the maneuver. Your fourth one should be directly under the second.

Focus on proper spacing so you don’t run out of room on the fourth and final horizontal pass. Skim along, very close to the ground, and as you pass under the position on the left side of the window where you started the maneuver, call a loud “OUT”.

**Competition Spacing:** IN is called fifty percent left of center at an altitude of ninety percent.

The first horizontal pass is at an altitude of seventy-one percent. The second pass is at forty-nine percent, the third at twenty-seven and the last very low at five. All horizontal passes cover eighty percent of the window - forty percent on each side of center. Turns are ten percent wide and twenty-two percent high.

OUT is called fifty percent left of center at an altitude of five percent.
The Jump: This is your first chance to combine push turns and pull turns in one maneuver. Don't be intimidated by the mixture of styles. After a bit of practice, it will become natural. Just remember, push for angles, pull for curves.

Because of the amount of time spent in low ground passes and straight vertical climbs, you will need to step back a lot during this figure to maintain speed or power. Start deep in the field so you have room to move.

The trick to completing a stylish Jump is to make sure the first and second horizontal passes are on the same line - that is, the same distance off the ground. Be careful, also, not to oversteer on the top curve or you will have to make very visible corrections.

Start with a horizontal pass from the right side flying out to the left edge. This will give you one last chance to check the speed of the kite and put you in the best position to begin the maneuver. Turn under to start the ground pass back to the right. Remember, pull-left to turn under. Pull-right to recover and bring your hands even. Pulling powers you into the turn. Pulling again, powers you out of it.

Make sure you are flying straight and just above the ground. Then call “IN”.

Keep your flight path straight and avoid any shaking or “wobbles”. Because of the effects of gravity, your kite may have a tendency to drift off line. Concentrate on remaining perfectly parallel to the ground.
Ground passes in lighter wind require additional power. Move back to maintain pace. Then as you approach the center of the window, push with your right to turn sharply up. Your objective is a crisp, ninety-degree corner. Remember that there will be a short delay between when you start the turn, and when it occurs, so start your turn a micro-second early.

Continue to move back through the vertical climb. Maintain the same pace as your horizontal pass and again, try to avoid any drifting. Keep your hands together to fly straight.

As you approach the top of the window, begin your pull-pull turn to the right. Continue to step back to maintain power and be careful not to oversteer. Start releasing from the turn before the spine of your kite has come perpendicular to the ground. Then, make sure that your vertical dive is exactly parallel to the vertical climb.

Now, finally, you have a chance to move forward and recover a bit of that ground you have been giving up. Slow the kite in the dive to maintain an even pace. As you approach the ground, prepare for another push turn. Time it so you are exactly the same distance from the ground as your first horizontal pass. Push-right to turn the kite left - toward the right side of the window.

Continue your straight horizontal flight and as you approach the right edge, call “OUT”. Wasn’t so hard, was it?

**Competition Spacing:** IN and OUT are called thirty percent from the outside edges. The horizontal passes are at five percent altitude - very close to the ground.

Vertical turns are ten percent left and right of center. The reverse turn is ten percent high and twenty percent wide. It peaks ten percent from the top of the window.
**Wedge:** Straight lines and sharp angles. By now you know that angles require - that's right - push turns.

Long diagonal lines also mean that your speed will vary as you change altitude or move in and out of the power zone. Diving kites fly faster than climbing ones. As always, keeping the same pace during the whole maneuver is important. Change your position to maintain a constant speed.

Start high on the right edge. Fly straight across the top of the window and then turn down at the point nearly two-thirds left of the centerline of the window.

Impress the judges early. Flying a sharp, ninety-degree corner at this point won’t get you any extra points, but will put spectators in the right frame of mind for what’s to come. Notice that the maneuver starts at the very top of the window, so call “IN” as soon as you turn down.

Track straight toward the ground, minimizing any side movement or shaking. If you have started on a straight line, perpendicular to the ground, all you need to do is keep your hands even. Concentrate on establishing a pace that you can maintain throughout the entire maneuver. Since you are in a downwind power-dive, you should move forward to slow the kite’s speed.

As you approach the ground, prepare yourself for a crisp, ninety-degree corner. Push right to turn the kite left. Anticipate the turn and time it so you make a sharp right angle just one kite width above the ground. Fix the location of this turn in your mind. You are going to need to find this spot again later.
After you turn, concentrate on remaining perfectly parallel to the ground. Keep your flight path straight and maintain a slight “up” pressure to offset the effects of gravity. You may need to step back to maintain the same pace that you established earlier.

When you have flown nearly two-thirds of the way past center, initiate another left turn by pushing with your right hand. Move onto a line parallel to the first vertical dive. Remember that climbing is slower than diving. Step back to maintain your pace.

Now the tricky part. At the same altitude where you began the maneuver at the top of the window, you need to make a very sharp left turn. Push-right - hard! Pop the nose of the kite around and aim it directly at that corner over on the bottom left side.

It is a long, straight diagonal flight back to the finish line and you need to pass right through the center of power zone. Make any corrections minor so they are less visible and don’t let changes in wind pressure throw your cadence off. Move slowly forward and back if you need to adjust the kite’s speed.

Keep focused on the point where you made that first corner. When you get there, call “OUT” — and then turn up to avoid crashing.

5. WEDGE

**Competition Spacing:** IN is called sixty percent left of center and ten percent from the top of the window. The bottom line is ten percent off the ground with the second corner sixty percent right of center.

The final turn is ten percent from the top. The turn involves a one-hundred-thirty degree angle which bisects the first corner. OUT is called at ten percent altitude.
The Mount: This is another maneuver where you need to find the exact center of the window and fix it in your mind before you begin. After a short horizontal pass, you will angle up and aim directly at this center target. And your flight path will cross here as you finish a high circle and return to straight line flying.

Obviously the top of this figure is not a full circle, but more of a teardrop. We call it a circle to remind you to make it round, not oval. Don’t make the common mistake of flying it too narrow. Also note that the tear is one-third the height of the full figure, even though it doesn’t look it. Don’t fly too big or too small.

The amount of time spent in low ground passes and diagonal climbs may require you to step back a lot. Start deep in the field so you have room.

Begin in a horizontal pass from the right side flying out to the left edge. Turn under to start the ground pass back to the right. Call “IN” right away.

Make sure you are flying straight and just above the ground. You know that ground passes in lighter wind require additional power. Move back to maintain pace and power, and keep a slight “up” pressure by holding your left hand a little back from the right. By now, you should have horizontal passes down to a science.

Concentrate on remaining perfectly parallel to the ground. Then as you pass the point halfway out from the center line, angle up forty-five degrees. Make this a short push turn with your right hand. As you recover, the nose of your kite should be aimed directly at the center of the window. Return to straight flight.

Use a short push for a 45 degree turn.
Even though you are flying into the power zone, you may need to move back through the diagonal climb to maintain the same pace as your horizontal pass. When you reach the centerpoint, prepare to fly the circle.

Pull-left to make the curve. Then, as you come around, straighten out and aim back toward dead center. Remember to anticipate so you don’t oversteer. Start releasing from the turn before the nose of your kite is aiming at your target.

You should now be on a diagonal line back toward a point on the ground, almost halfway right of center. Move forward to reduce speed. Then as you approach the ground, push with your right hand to return to a horizontal pass. Your objective is to position this second horizontal pass exactly the same distance above the ground as the first one. Maintain pace. Fly straight out to the right edge, and call “OUT”.

**Competition Spacing:** IN and OUT are called twenty percent from the outside edge on a horizontal line ten percent above the ground. Angle up forty percent left of center.

Curves for the circle begin and end sixty percent above the ground. The circle is twenty-five percent wide and peaks twenty percent from the top of the window. The second diagonal crosses the first one at a right angle in the center of the window and returns to horizontal flight forty percent right of center.
Eight: This is a long narrow maneuver that fills the window from top to bottom, but never flies very far left or right. On the bottom turn, you will be passing very close to the ground, so be careful to avoid any wingtip touches. Once again, you need to find the exact center of the window and fix it in your mind before you begin. Picture a big, diagonal “x” there.

Make sure that the top teardrop is exactly as wide and tall as the bottom one. You might want to think of them as circles if that helps you fly them nice and round.

The beginning and end of the figure is a horizontal pass flown higher in the window than any other precision maneuver. Start with a high horizontal pass from right to left. Fly straight across the window and then turn up and over to move into position at the very top. Use a pull-pull turn, leading with the right, and step back to increase power. Establish a straight line to the right and call “IN” about one-third from the center.

Because wind pressure is light at the very top of the window, you will need to pull slightly with your left hand to keep flying straight. Keep moving back to maintain a reasonable speed.

When you reach the center line, begin to curve downward into the teardrop. Treat the top half as if this were a real circle, about one-third as wide as the wind window. And start moving forward to decrease the speed of the kite. You will need to stay slow to match the pace of the horizontal pass you just finished. Be prepared to adjust speed as you change altitude and move through the power zone.

When you complete the outside arc, straighten out and aim the nose of your kite right at the center of the window. Keep your movements smooth to form curves, not angles. You want to be flying at a forty-five degree diagonal so the first teardrop fills the entire top half of the window.
Now your objective is to complete a second teardrop in the bottom half of the window. Make it a mirror image of the top one, just as tall and just as wide. You can stop moving forward as you finish the dive. This will provide extra power as you fly under at the bottom of the window.

As you finish the bottom teardrop, you will pass through the center of the window again. Remember that imaginary “x”? Keep flying straight and begin to move back if you need extra power or speed during the climb. Finishing the second teardrop should be easy at this point.

As you reach the top of the window, straighten out into a high horizontal pass. Ease into it. Make this pass look like a continuation of the original horizontal line that started the maneuver. Keep moving back to generate the power and lift you need.

When you are a third of the way right of center, call “OUT”, catch your breath from all that moving back and forth, and then walk over to a good starting point for your next figure.
**Pyramid**: Ready for lots of sharp angles? Been exercising your left hand? You’ll need hard push turns and good measuring skills to put all of these lines where they belong. A bit of practice will go a long way. Fortunately, the figure is centered in the power zone so the wind will be working with you.

The key to the Pyramid is to recognize that the top of the triangle and the center of the bottom horizontal are on an imaginary vertical line that divides the window in half. Another thing to notice is that the bottom corners of the triangle are directly below the IN and OUT points. You can use these kinds of observations to improve your spacing and the appearance of your maneuver.

Start with a high horizontal pass toward the left. Turn under, straighten your flight, and call “IN” about half way back to the center. When you reach the center of the window, push with your left hand. Anticipate the turn so you can hit it right on that imaginary center line. Fix this turning point in your mind. You will need to find it again before you are finished.

If you have turned properly, you will be on a diagonal dive toward the ground at a sixty degree angle. Move gently forward to adjust your speed, but maintain some line tension for the sharp turn coming next. Now, as you approach the ground, push hard with your left hand. Pop it out there! You want to snap the kite around a full one hundred-twenty degrees, parallel to the ground.

Move back to maintain pace and power, and keep a slight “up” pressure on the right line to keep your flight parallel to the ground.
As you cross that imaginary line at the center of the window, remind yourself that you are only half finished with the horizontal pass. Turn up too soon or too late, and you’ll miss either your angle or the top of the triangle. Fly an equal distance out to the left as you prepare for your next tight angle. Now, push hard with your left hand again. This will be another one hundred-twenty degree turn.

Pivot the kite back sharply around and aim it directly at the top point of the triangle. To maintain a constant speed, you may have to move again. Step back gently as you climb. Pass through the power zone, and then prepare for your last turn.

At exactly the same point where you entered the triangle, snap another push-turn with your left hand for the final horizontal. Your objective is to make it look like a continuation of the original line that started the maneuver. Fly out to the point directly over the bottom right corner of the triangle, and call “OUT”.

**8. PYRAMID**

_**Competition Spacing:**_ IN and OUT are each forty percent from center on a horizontal line twenty percent from the top of the window. The turning point for the top of the triangle is directly in the center.

Outside edges of the triangle are also forty percent from the centerline. The bottom horizontal is at ten percent altitude. Note that all inside angles are sixty degrees. A common error is to fly them at forty-five.
The Bulb: This one isn't as easy as it looks. The figure requires quick transitions from angles to curves, and for some reason, people tend to fly the proportions all wrong.

Visualize the top portion as a full circle. The circle takes up two-thirds the height of the maneuver. In other words, the vertical lines are only one-third the height of the entire Bulb. This means you will need to fly them very quickly.

Start with a horizontal pass from the right side flying out to the left edge. Turn under to start a ground pass back to the right. Set your speed. Make sure you are flying straight and just above the ground. Picture the full maneuver in your mind. Now, as you approach the halfway point on the left side of the window, call “IN”.

Continue to fly straight and level. Then, about two kite widths from center, snap a sharp, ninety-degree turn by pushing with your right hand. Remember to anticipate. There will be a short delay between when you start the turn, and when it occurs, so begin to push a micro-second early.

As soon as you have established vertical flight, it will be time to break to the left. Push with your right again, but not as hard as before. Aim for a forty-five degree angle. Your objective is to create a clear angle as you steer into the round part of the figure.

Immediately after pushing right, begin to pull back. You need a quick, smooth transition from a push-turn to a gentle pull-turn. Remember, push for angles, pull for curves. Visualize a perfectly round circle that peaks three-fourths of the way to the top of the window. Maintain a steady pull with your right hand and fly that circle.
To keep the flight lines fluid, and your speed constant, you will need to keep moving throughout the maneuver. Move back as you climb. Move forward as you go over the top. Move forward more as you dive and complete the circle.

Just as you begin to turn under, at precisely the same altitude as you entered the circle, turn out. Push with your right again. Create another clear angle that shifts the kite onto a vertical line perpendicular with the ground.

Stabilize your flight, and then push hard with your right to form the final turn. This will come very quickly, so prepare yourself. Don’t oversteer. You’ve come too far to mess things up now.

Move back to power yourself out of the turn, but watch your pacing to make sure you’re not flying too fast. Then simply fly out, half way to the right edge and call “OUT”.

If you aren’t convinced the figure was perfect, fly it again. Improvement comes with practice.

**Competition Spacing:** The figure begins at an altitude of ten percent, half way out to the left. Turn into the vertical line fifteen-percent from center. Angle into the circle at thirty percent altitude.

The circle is fifty percent wide and peaks twenty-five percent from the top of the window.

Exit angles mirror those used to enter the figure. OUT is called fifty percent from center on the right at an altitude of ten percent.
Power Dive with Roll: Here is your first chance to include a spin as part of a precision maneuver. The tricky part will be pulling out at exactly the right time. Your objective is to fly two parallel lines, perpendicular to the ground, with the spin placed perfectly between them.

Consider the size of the maneuver carefully, and compare it to the proportions of your kite. A common mistake is to make the spin too big. Don’t overcompensate by spinning too small either. Unless the window is quite compressed, the kite will not be turning inside its wingtip.

Approach from the top of the window on the left side. Notice that the starting point is very high up, so move back on your approach to generate an extra bit of lift. Fly straight across and then turn down about one kite width left of center.

Try flying a sharp, ninety-degree corner at this point. You will need this precision move since you have no time on the vertical dive to establish a straight line. The figure starts at the very top of the window, so call “IN” right away.

Track straight toward the ground. All you need to do is keep your hands even. Concentrate on establishing a pace that you can maintain throughout the entire maneuver. Since you are in a downwind power-dive, you should move forward to slow the kite’s speed.

As you approach the bottom of the window, stop moving forward to tension the flying lines. Then begin your spin by pulling on the left line. If the winds are light, move back to increase power. If the wind is heavier, brace yourself for the extra pull.
Watch out for the ground here. Remember that lines in the illustrations are based on the nose and spine of the kite, not the wingtip. Even brushing the grass will cost you points so time your spin carefully. Don’t “skid” out of the turn or let the kite’s inertia push you lower than you planned. You want to be close enough to the surface to be exciting, but not so close it is dangerous.

The temptation will be to spin the kite fast so the wind roars off the sail. Don’t do it! Timing your exit is crucial, and slower movements allow more precise calculations.

Turn over the top and come back under a second time on the spin. Anticipate your release so the nose of the kite will be aiming straight up. As you approach that point, pull back on the right line to straighten, and move back to increase power for the climb.

Continue to move back through the vertical climb. Maintain the same pace as your vertical dive and again, try to avoid any drifting to either side. Keep your hands together to fly straight.

As you reach the top of the window, call “OUT”. You can’t go farther because you have run out of flying space. Either stop and hover, or push left or right to exit. Just make sure you call “OUT” before you do something else. Otherwise, the judges will count anything extra you do. And in this case, extra movements don’t help.

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**10. POWER DIVE WITH ROLL**

**Competition Spacing:** IN and OUT are at the very top of the window. Vertical lines are ten percent off center. The spin is twenty percent in diameter, and is flown ten percent off the ground.