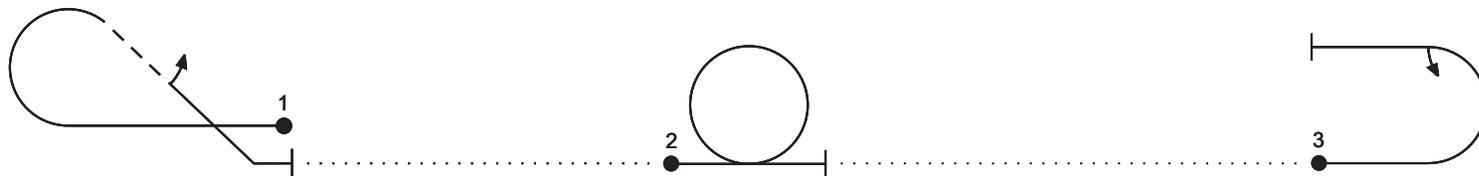


# Sport Aerobatics

## Introduction

### Phase I Maneuvers Group

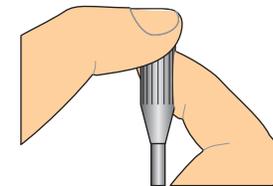
#### Aresti Diagram Basics



### Sequencing and Building Maneuvers



**Maximizing Practice**

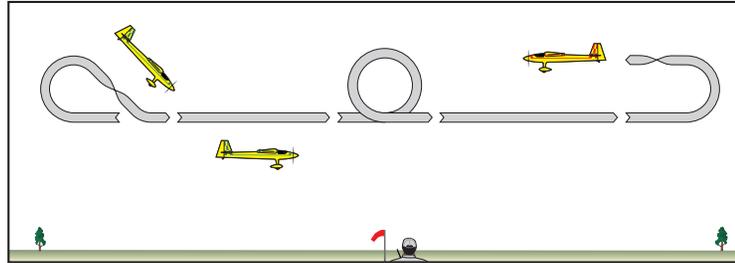


## Sport Aerobic Maneuver Components

Take note: C-16 illustrates the aerobic maneuvers that make up the Phase I Sport Aerobatics program. These maneuvers involve or are combinations of:

- Horizontal lines
- Loops and/or partial loops
- 45° climbs and descents (uplines and downlines)
- Rolls and/or partial rolls —

All are flown parallel to the runway centerline from the pilot's left to right and right to left, and all begin and end in upright level flight.



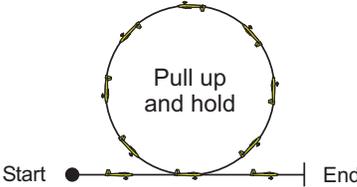
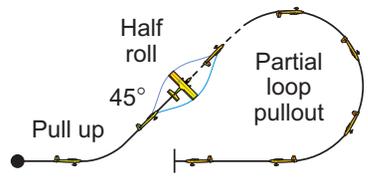
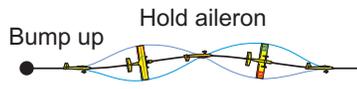
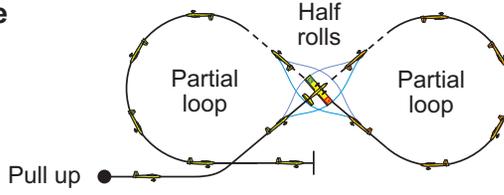
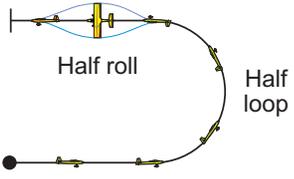
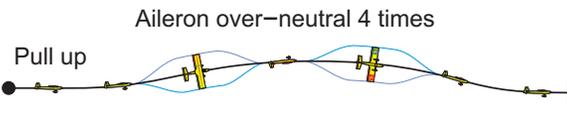
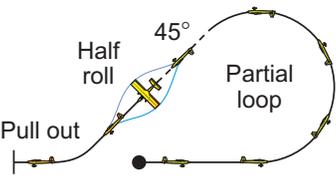
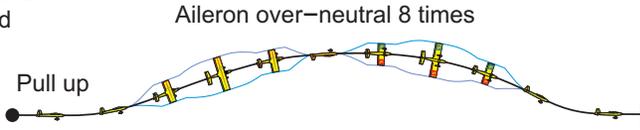
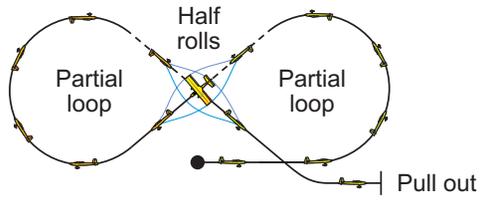
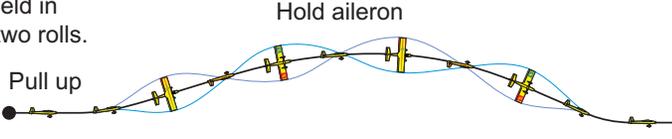
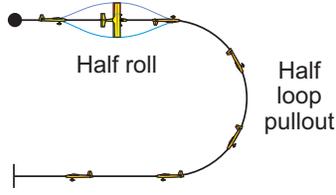
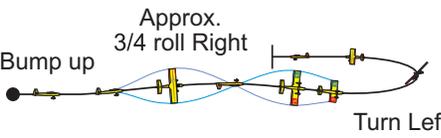
It is not uncommon for those new to aerobatics to feel oblivious to what's going on when trying to learn from watching experienced aerobatic pilots fly (making what they do seem that much more impressive). Yet, if you exclude *daredevils* who attempt to impress by taking risks low to the ground, and those who just put the sticks into the corners until it's time to recover, you will learn to recognize that controlled aerobatic maneuvers flown by proficient pilots are made up of a series of predictable steps. And, displays of aerobatic prowess are often not much more than a continual re-arranging of those steps/components. While it is true that with time the process of executing one step to the next becomes so fluid that it appears as though several things are being done all at once, there remains a consistent order or sequence to the events. Herein is where the DAS System takes its form, by breaking down and approaching each maneuver as a series of individual steps.

C-17 through C-23 introduce how maneuvers are constructed through the aid of the Aresti system of diagramming aerobatic figures, along with providing several important tips to maximize your practice time.

KPTR: Seeing how maneuvers are constructed *beforehand* fosters a faster rate of progress when put into practice.

# Phase I Aerobatic Maneuvers Group

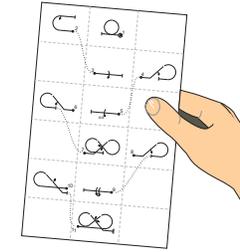


<p><b>1. Inside Loop</b> Up elevator held in all the way around.</p>  <p>Start ●   End</p>	<p><b>7. Half Reverse Cuban 8</b> A 45° climb, followed by a half roll to inverted, and a 5/8 loop to level.</p> 
<p><b>2. Aileron Roll</b> A bump up into a slight climb, followed by holding in aileron all the way around.</p> 	<p><b>8. Full Reverse Cuban 8</b> One half Reverse Cuban 8 Followed by another.</p> 
<p><b>3. Immelmann</b> A half loop, followed by a half roll to upright.</p> 	<p><b>9. 4-Point Roll</b> Aileron applied and returned to neutral 4 times.</p> 
<p><b>4. Half Cuban 8</b> A 5/8 loop to a 45° downline, followed by a half roll to upright, and pullout to level.</p> 	<p><b>10. 8-Point Roll</b> Aileron applied and returned to neutral 8 times.</p> 
<p><b>5. Full Cuban 8</b> One half Cuban 8 followed by another.</p> 	<p><b>11. Double Roll</b> Aileron held in through two rolls.</p> 
<p><b>6. Reverse Immelmann (Split S)</b> A half roll to inverted, followed by a half loop to level.</p> 	<p><b>12. ORT Turn</b> Opposite Roll into a Turn: A 3/4 right roll into a left turn.</p> 

KPTR: Many different maneuvers are possible simply by rearranging the order in which loops and rolls are performed. C-16

## Aresti Symbol Basics

Graphics in this program are a combination of how the maneuvers will appear when flown and the *Aresti* system of diagramming aerobatic *figures* (maneuvers). Jose Luis Aresti developed this system of aerobatic shorthand in 1969, and understanding Aresti will help you to *see* what each maneuver consists of and the order that the steps are flown.



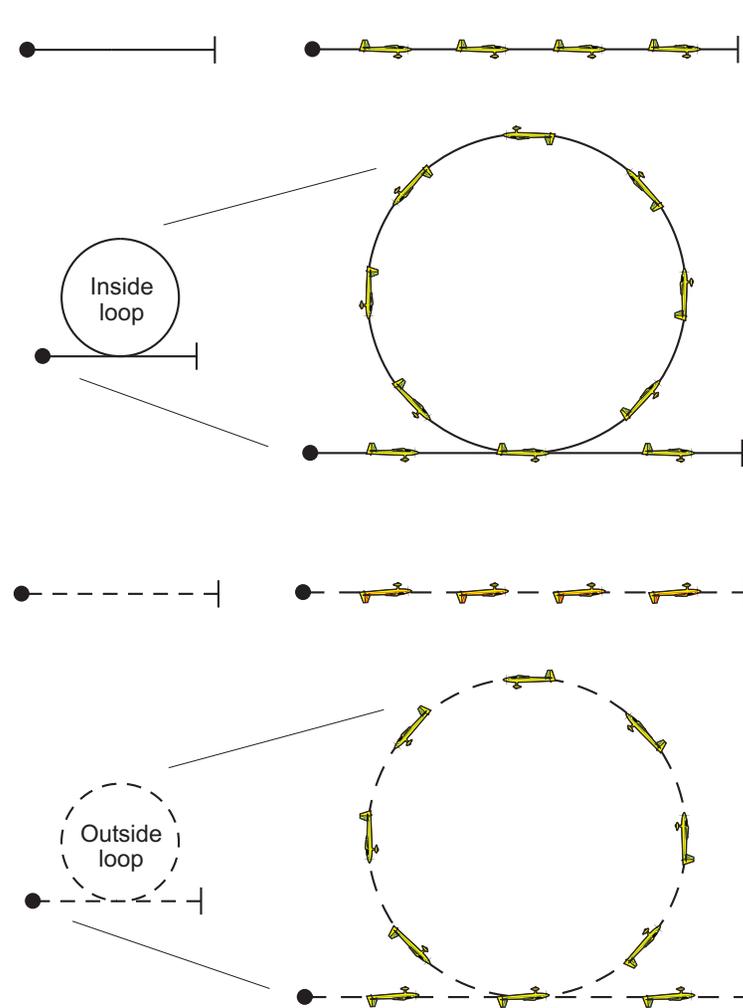
1. A dot signifies the start of a maneuver, and a cutoff line signifies its end.

2. A solid line represents *positive* flight. E.g., if you were in the plane gravity or centrifugal force would be pulling you *into* your seat, as in upright normal flight or when pulling up elevator in a *positive* inside loop.

Note: While from your perspective on the ground the plane is upside-down (inverted) at the top of a loop, because the elevator is pulled back and the loop is positive throughout, the loop is drawn/symbolized with a solid line throughout.

3. By comparison, a dashed line represents *negative* flight. E.g., if you were in the plane gravity or centrifugal force would be trying to pull you *out* of your seat, as in inverted flight or pushing forward elevator in a *negative* outside loop.

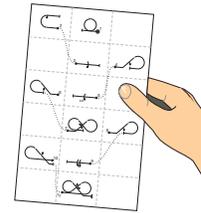
While at the top the airplane may be upright, because the elevator is pushed forward and the loop is negative throughout, it is drawn with a dashed line throughout.



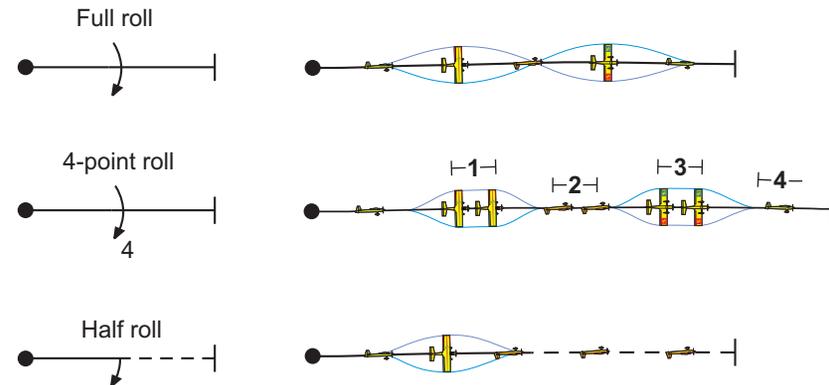
KPTR: Utilizing Aresti will help you to enter your flights with a more vivid understanding of what to do.

## Aresti Symbol Basics

Using Aresti to map out on a piece of paper the practice sequence that you aim to fly will help cement your intentions and significantly improve your ability to remember things in the air. But most importantly, it will serve as a review aid to make more meaningful assessments of your practice and track your progress!

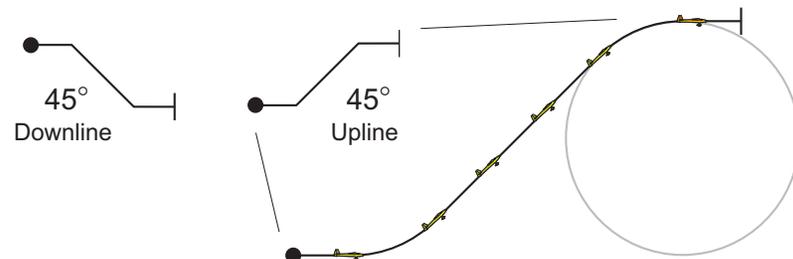


4. A full arrow running through a line signifies a full 360° aileron roll. A 4 or 8 next to it indicates it's a 4 or 8-point *hesitation* roll.



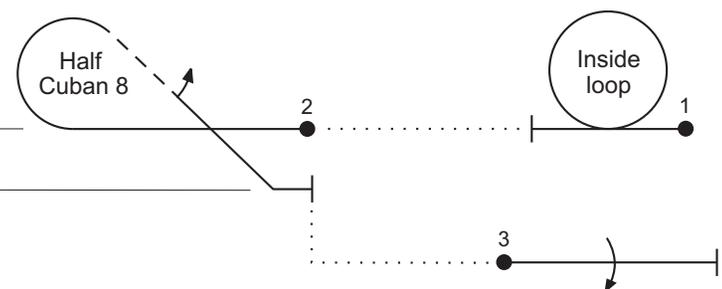
5. A shorter half arrow originating from the line signifies a half roll. A 2/4 or 4/8 fraction next to it indicates it's half of a 4 or 8-point hesitation roll.

6. Aresti is simplified by not drawing a radius when the pitch change is relatively brief, e.g., pulling up to a 45° upline. Note that these radii should be *flown* the same (smoothly) as any other partial or full loop.



7. The *offsetting* of lines in some Aresti figures is intended to aid clarity by separating the entry from the end of the maneuver—even though these maneuvers when flown are preferably entered and exited at the same altitude.

**Other:** A dotted line is used to *lead* one maneuver to another. (It shows the viewer what is next when maneuvers are flown in succession. It is *not* a flight path.)



KPTR: Mapping out your practice with Aresti will help you track your progress and pinpoint the areas that you want to improve.