



**Model Aeronautics Association of Canada**

**Wings Program**

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## PURPOSE OF THE PROGRAM

1. To provide an interesting and challenging flying achievement program that will encourage individual club members to improve their overall flying ability.
2. To develop a membership of competent flyers to assist new club members regarding all aspects of the sport that pertain to powered flight.
3. To minimize safety hazards and accidents by encouraging all club members to develop better and more proficient flying habits,
4. To make radio control flying a more meaningful and satisfying experience for all club members.

## FLYING PROFICIENCY LEVELS

There are four flying proficiency levels, as indicated below. After successful examination at each level, beginning at Level "A", a candidate will receive a certificate for the appropriate wings level.

The following is a list of levels and flyer status:

- "A" - Basic control
- "B" - Intermediate
- "C" - Intermediate advanced
- "D" - Advanced

The current flying proficiency level attained by each club member will be recorded on a membership list.

## GENERAL RULES AND CONDITIONS

1. Qualified instructors of the club will be appointed as examiners for the purpose of granting PURPOSE OF THE Program Wings. All other members wishing to participate in the judging are welcome and are encouraged to qualify.
2. To qualify as a Official "Examiner", the member must attain their "C" level Wings.
3. The above qualification is good for marking "A" and "B" levels only. To mark "C" and "D" levels one of the two examiners must hold a "D" level.
4. Two examiners are required for "B", "C" and "D" levels. To ensure that all members have an opportunity to obtain the required "A" level one qualified examiner will suffice if two are not available. However the candidates instructor cannot be the sole examiner.
5. Examinations may be taken at any time, however to ensure that an examiner will be on hand a candidate should contact the Chief Instructor so that arrangements can be made. During an examination no other aircraft shall be flying or running in the pits. This is to ensure every advantage to the candidate.

6. All maneuvers will be judged out of 10 points. A minimum of 6 points for each maneuver and 60% for each flight is required for a passing grade. Two successive flights must be made and both of them must be successful (attain at least 6 points in each maneuver).
7. Judging for "A" levels will tend to be softer than for the other categories. This is to account for trainer type aircraft and nerves. However, the other 3 categories will be marked in the same manner as at a contest. When you win your wings you can be proud of them!
8. Candidates may, if they wish, have an assistant to aid them in the pit area and call the maneuvers out during the flight.
9. If there are 10 or more planes waiting to fly approval from all pilots is required before test may commence.

## **"A" LEVEL BASIC CONTROL**

*Before taking the "A" level Wings test the prospective pilot must demonstrate to their instructor that they are capable of flying the test from either direction and have mastered dead stick landing procedures. While these capabilities are not suitable to be demonstrated in a "test" situation they are viewed as mandatory capabilities for competent pilots.*

Candidates must demonstrate on two successive attempts during their examination period his ability to:

1. Take off and land unassisted.
2. Maintain straight and level flight parallel to the runway.
3. Perform a figure eight.
4. Rectangular Approach.
5. Land under power.

## **"B" LEVEL INTERMEDIATE CONTROL**

Candidates must demonstrate on two successive attempts during the examination period their ability to :

1. Take off.
2. Straight flight out/back
3. Procedure turn.
4. Two overlapping loops.
5. One horizontal role.
6. Rectangular approach.
7. Landing under power.

## **"C" LEVEL INTERMEDIATE ADVANCED**

Candidate must demonstrate on two successive attempts during the examination period his ability to:

1. Take off.
2. Stall turn.
3. Two consecutive horizontal turns.
4. Immelman Turn.
5. Cuban 8.
6. Straight inverted flight.
7. One outside loop.
8. Landing.

## **"D" LEVEL ADVANCED**

Candidate must demonstrate on two successive attempts during the examination period their ability to:

1. Take off.
2. Stall turn with 1/2 rolls.
3. Three horizontal rolls.
4. Three reverse outside loops.
5. Horizontal 8.
6. Four point roll.
7. Three turn spin.
8. Landing

## **PILOTS INSTRUCTIONS**

1. The pilot must stay within the designated pilot area for all maneuvers.
2. The pilot or their aid must call his maneuvers prior to execution.
3. At no time should the aircraft fly behind the flight line.
4. The candidate must perform all maneuvers and/or procedures parallel to, but beyond the designated runway.
5. Candidates will maintain a reasonable height and range while being judged.
6. Candidates are allowed only two free passes per flight.

## **GENERAL DOWNGRADING**

A general downgrading of the total score will be made due to the following:

- 5 points for each time the aircraft crosses the flight line.
- 2 points for each time a maneuver is not clearly called.
- 5 points for each free pass made over the allowed limit of two,
- 5 points for flying too far away.

NOTE: See description of maneuvers for individual downgrading.

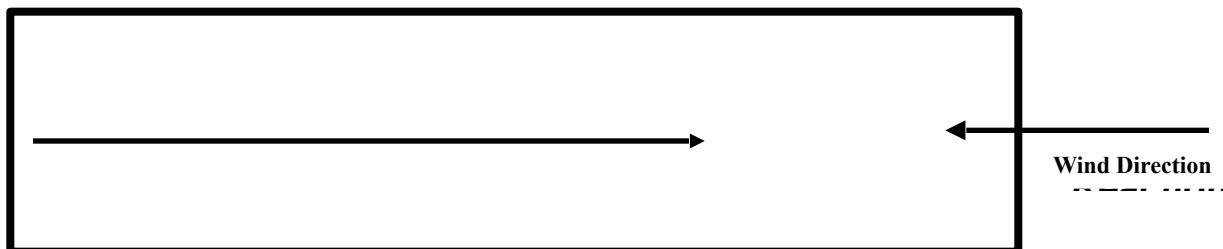
**Take Off:**

From a dead stop, model travels straight down the center of the runway. Model lifts off and climbs out straight with wings level. maneuver complete two meters off the ground.

**Downgrades:**

- Take-off not straight.
- Lift-off is not smooth.
- Climb-out too steep or erratic.
- Model pulls left or right during climb.

**Diagram**



**Top View**



**Side View**

Wings Level A B C D

**Applies to:** X X X X

### ***Straight Flight***

#### **Straight Flight Out**

The model will attain altitude and must be flown parallel to the runway in an absolutely straight and level path into the wind for three to five seconds. The maneuver must be centered directly in front of the judges.

#### **Straight Flight back**

The model flies straight and level on the same line and altitude as the Straight Flight Out and finished in front of the judges

#### **Downgrades:**

- Model makes change in altitude during straight and level flight.
- Model deviates left or right.
- Maneuver not held for at least three seconds.
- Maneuver not centered in front of judges.
- Model is flown at a distance greater than twenty-five meters away from in front of the judges.

#### **Diagram**



**Side View**

Wings      A B C D  
Level

**Applies to:** X X



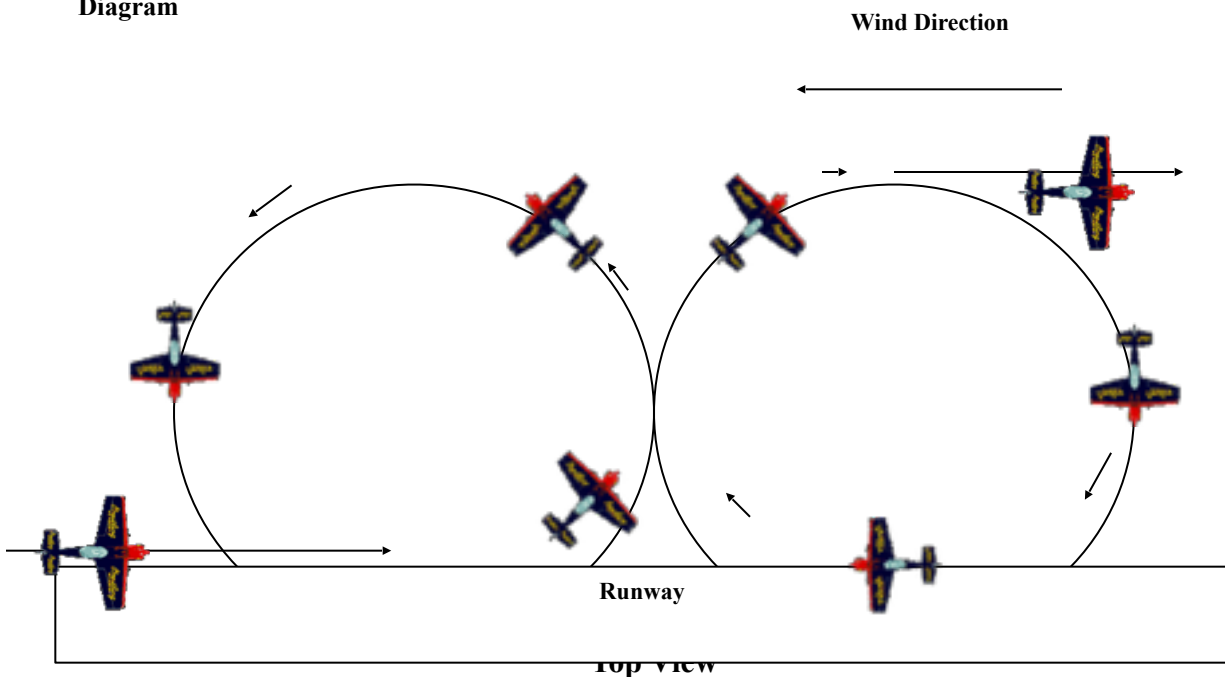
**Flat Figure Eight**

The model will attain altitude and must be flown parallel to the runway to a point at the center-line of the judges. Model then makes a ninety degree turn in a direction away from the judges, levels its wings, and then makes a 360 degree flat turn to the right or left. When the model returns to its original heading away from the flight line, it makes a second 360 degree flat turn in the opposite direction to the first 360 degree turn. The maneuver is complete when the model levels its wings after the second 360 degree turn.

**Downgrades:**

- First turn not exactly 90 degrees.
- 360 degree turns not circular in shape.
- Model makes changes in altitude during 360 degree turns.
- Model does not finish the first and second 360 degree turns at the original start point of the maneuver

**Diagram**



Wings      A B C D  
 Level  
**Applies to:**    X

### **Rectangular Approach**

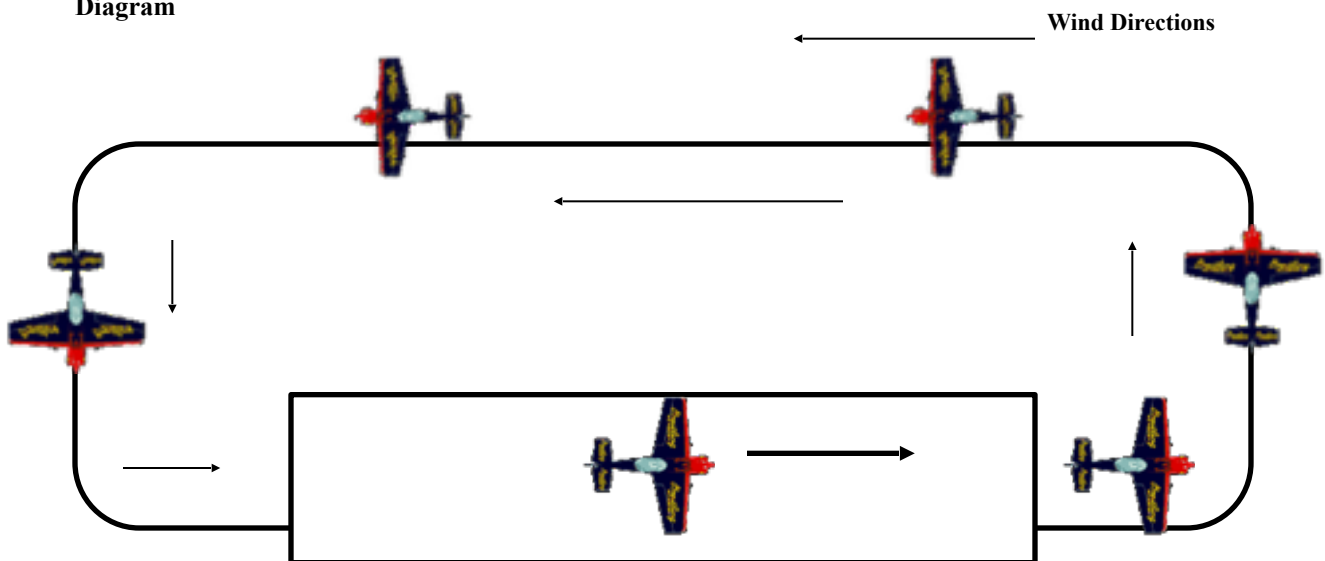
The maneuver begins with the model flying straight and level into the wind parallel to the runway. At the far end of the runway, the model turns 90 degrees away from the flight line for the first cross-wind leg. The model makes a second 90 degree turn into the down-wind leg. The model makes a third 90 degree turn into the second cross-wind leg. The model makes a fourth 90 degree turn into the wind and continues on a descending flight towards the touchdown at the start of the landing strip.

The first three legs are to be held at a constant altitude. The descent will commence after the fourth 90 degree turn has been executed. The maneuver is complete when the aircraft descends to 2 meters off of the ground.

#### **Downgrades**

- The 90 degree turns are not smooth and precise.
- Turns are more or less than 90 degrees.
- Model deviates from heading on the straight part of any leg.
- Model changes altitude on the straight part of the first three legs.

**Diagram**



Wings	A	B	C	D
Level				
<b>Applies to:</b>	X	X		

### **Landing**

The maneuver starts when the aircraft descends to two meters above the ground. The model flares smoothly to touch the ground and rolls to a stop with no bouncing or changes in heading.

**Downgrades**

- Wings not level.
- Model changes heading.
- Model impacts the ground due to lack of flare.
- Model bounces after touchdown.
- Model ends up on its back - automatic 0 points for maneuver.
- Any undercarriage leg collapse or retract on landing - 0 points for maneuver.

**Diagram**



**Side View**

Wings	A	B	C	D
Level				
<b>Applies to:</b>	X	X	X	X

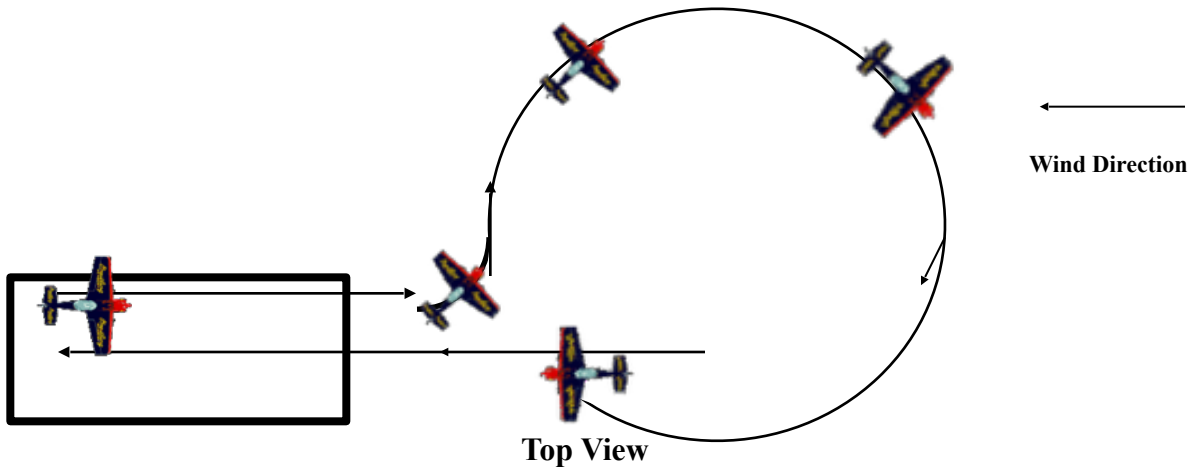
***Procedure Turn***

After the Straight Flight Out, model makes a 90 degree turn away from the flight line followed by a 270 degree turn in the opposite direction back to the reverse flight path of the Straight Flight Out.

**Downgrades**

- First turn not exactly 90 degrees.
- Opposite turn not exactly 270 degrees.
- Changes in altitude during turn.
- Turns not smooth and circular.
- Does not head back over exact outgoing path.

**Diagram**



Wings	A	B	C	D
Level				
Applies to:	X			

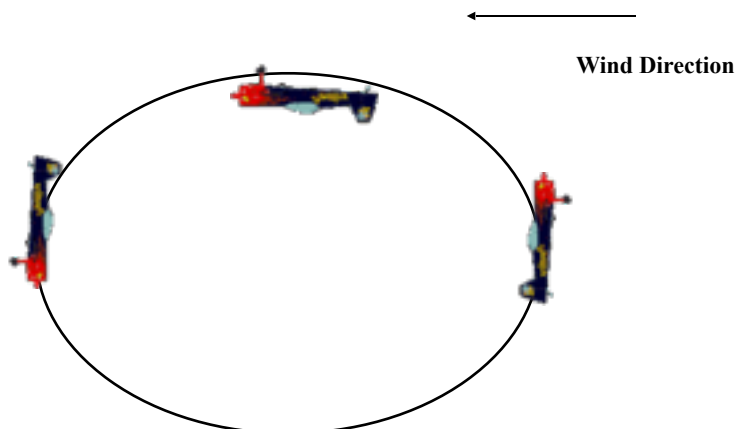
### ***Two Inside Loops***

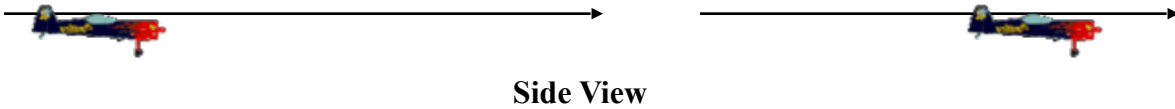
Model pulls up and executes two consecutive loops. Both loops should be round and superimposed.

#### **Downgrades**

- Loops not round.
- Loops not superimposed.
- Wings not level during loops.
- Changes in heading during loops.

#### **Diagram**





Wings      A B C D  
 Level

**Applies to:**      X

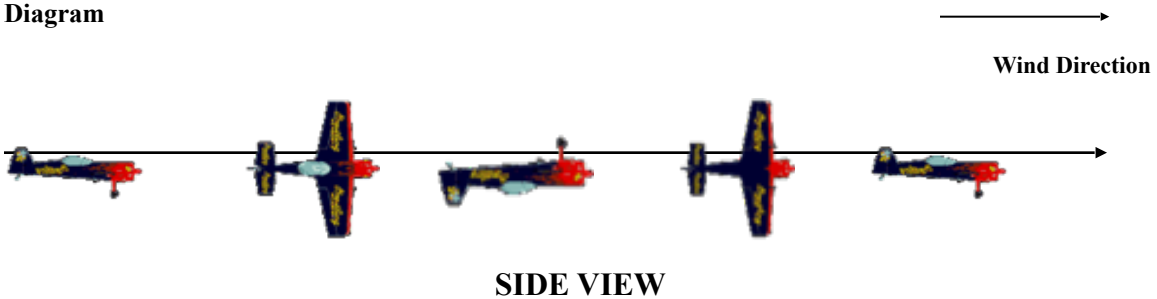
***One Horizontal Roll***

Model rolls through 360 degrees on a straight and level path.

**Downgrades**

- Model varies in altitude.
- Model not level on entry and exit.
- Roll not 360 degrees.
- Model changes heading.
- Roll rate not constant

**Diagram**



Wings      A B C D  
 Level

**Applies to:**      X

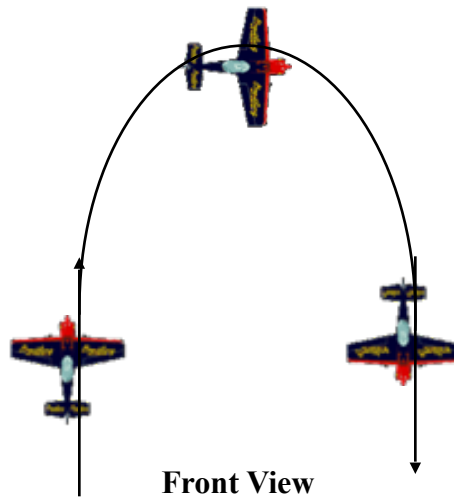
### **Stall Turn**

Model pulls up into a vertical attitude, executes a 180 degree stall turn in either direction, then recovers in level flight.

**Downgrades:**

- Model not vertical before and after stall turn.
- Stall turn not exactly 180 degrees.

**Diagram**



Wings      A B C D  
 Level  
**Applies to:**      X

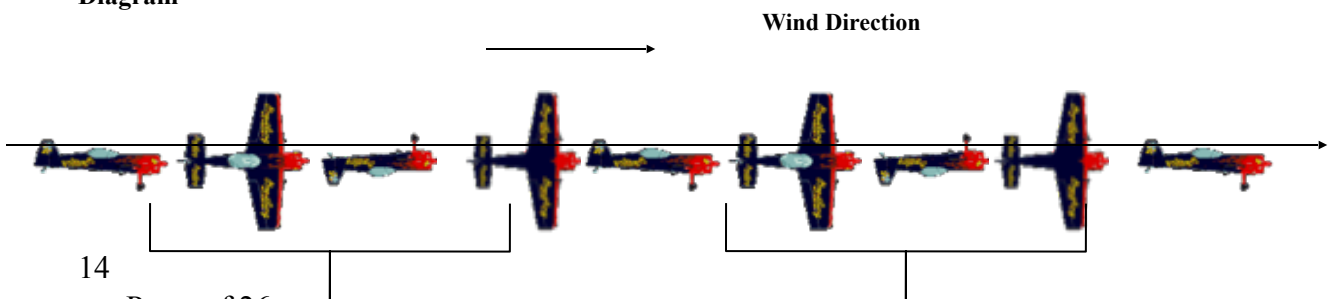
### **Two Horizontal Rolls**

Model rolls at a uniform rate through two complete revolutions in either direction.

**Downgrades:**

- Changes in heading during rolls.
- Changes in altitude during rolls.
- Roll rate not constant.
- Model does not do exactly two rolls.

**Diagram**



One Roll

Side View

Second Roll

Wings A B C D

Level

Applies to: X

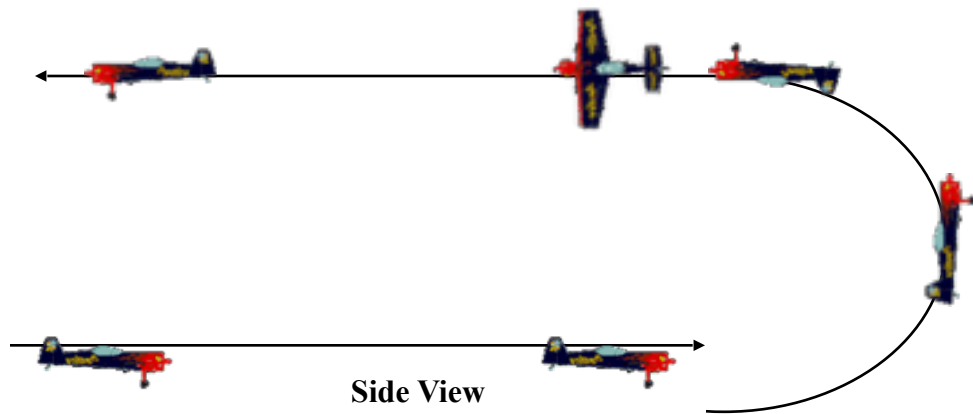
### Immelman Turn

Model pulls up and completes 1/2 loop then immediately performs 1/2 roll to recover in level flight at a higher altitude than entry.

#### Downgrades:

- Change in heading during 1/2 loop or 1/2 roll.
- 1/2 roll not immediately after 1/2 loop.

#### Diagram



Side View

Wings A B C D

Level

Applies to: X

### Cuban Eight

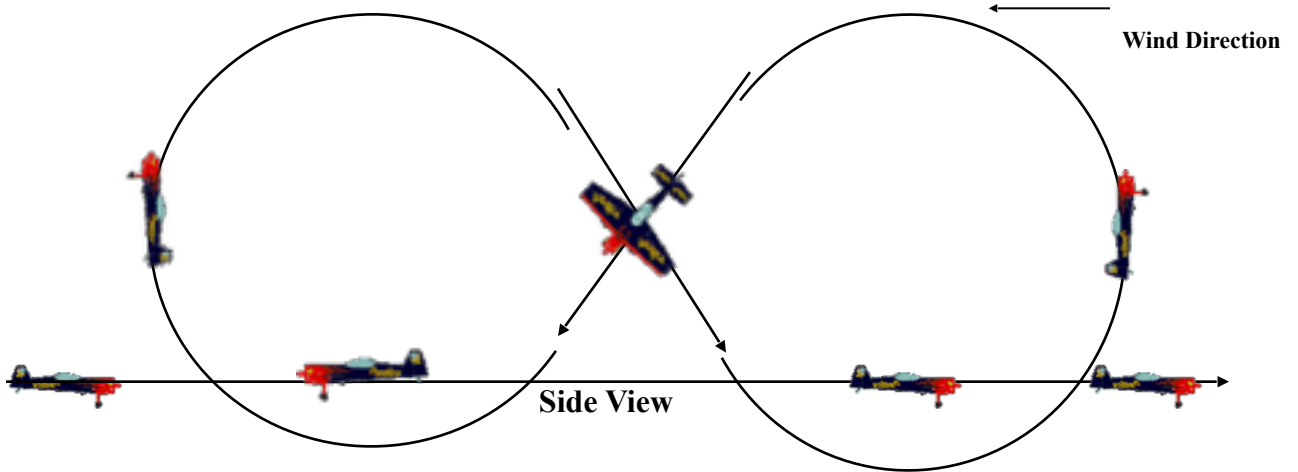
Model pulls up and executes an inside loop to a point where it is inverted on a 45 degree down line. Model then performs 1/2 roll followed by an identical 1/2 loop to a 45 degree down-line. Model performs second 1/2 roll to upright and completes first loop to level flight.

#### Downgrades:

- Loops not round and the same size.
- Model not 45 degrees at time of commencement of 1/2 rolls.
- Changes in heading in loops or rolls.
- Crossover rolls do not occur at the same point.



**Diagram**



Wings      A B C D  
Level  
**Applies to:**      X

***Straight Inverted Flight***

Model half rolls to inverted and flies straight and level inverted for a minimum of four seconds, then one half rolls back to level flight.

**Downgrades:**

- 1/2 rolls not level.
- Inverted flight not straight and level.
- Changes in heading during rolls and inverted flight.
- Inverted flight not four seconds.

**Diagram**





## Side View

Wings      A B C D  
Level

Applies to:      X

### **One Outside Loop**

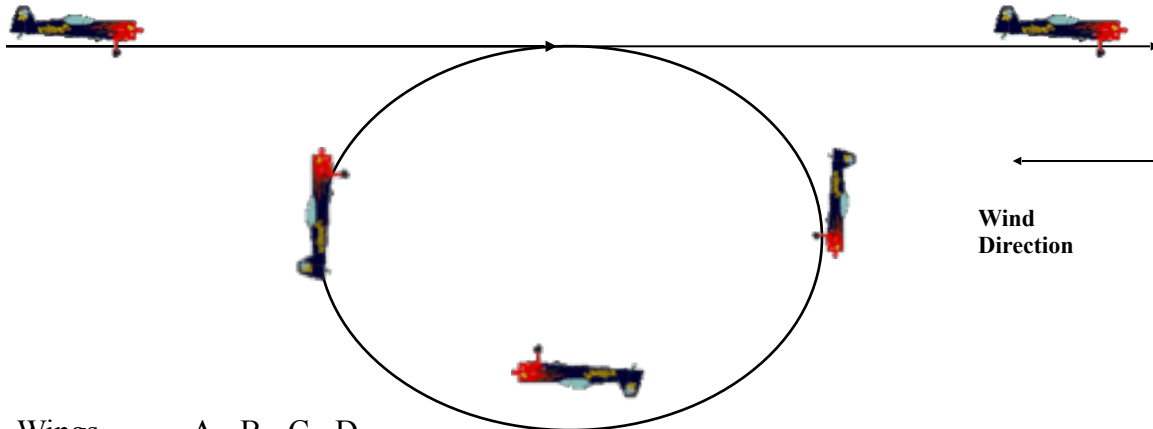
Model pushes over and executes one outside loop.

#### **Downgrades:**

- Loop not round.
- Wings not level during loop.
- Changes in heading.

#### **Diagram**

#### **Side View**



Wings      A B C D  
Level

Applies to:      X

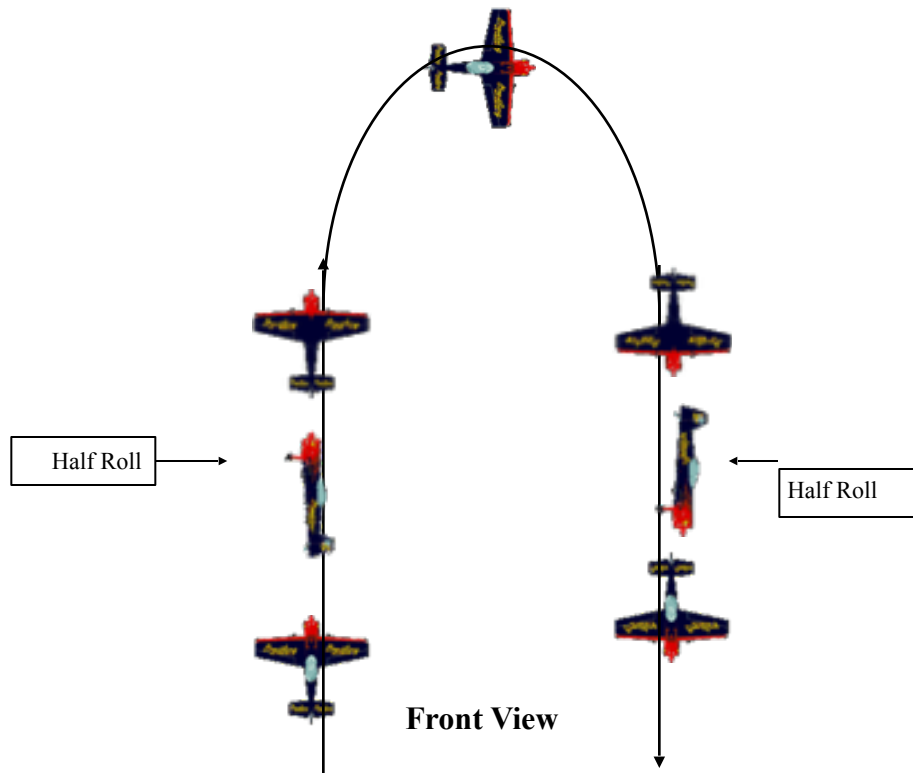
### **Stall Turn with 1/2 Rolls**

Model pulls up into a vertical attitude, performs a 1/2 roll, executes a 180 degree stall turn (left or right) performs another 1/2 roll then pulls up to exit in level flight.

#### **Downgrades:**

- Model not vertical at start and finish of rolls and stall turn.
- Entry and exit levels are not at the same altitude
- Stall turn and 1/2 rolls not exactly 180 degrees.

## Diagram



Wings      A   B   C   D

Level

**Applies to:**                      X

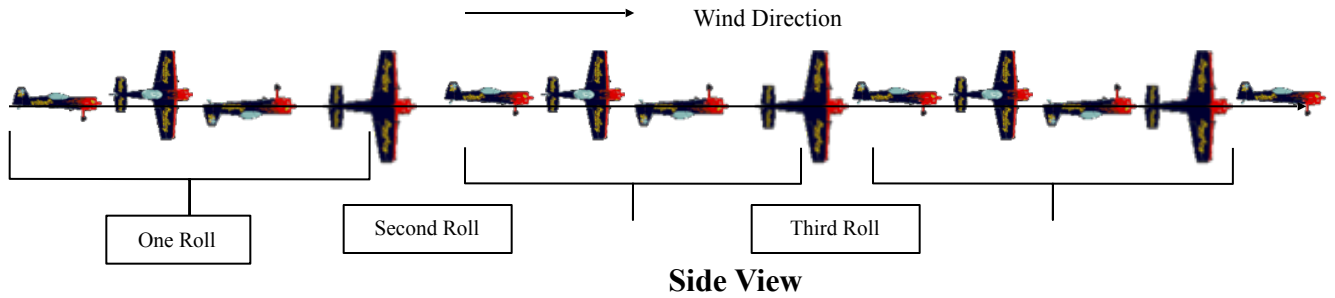
### ***Three Horizontal Rolls***

Model rolls at a uniform rate through three complete revolutions in either direction.

#### **Downgrades:**

- Changes in heading during rolls.
- Changes in altitude during rolls.
- Roll rate not constant.
- Model does not do exactly three rolls.

**Diagram**



Wings      A B C D  
Level  
**Applies to:**              X

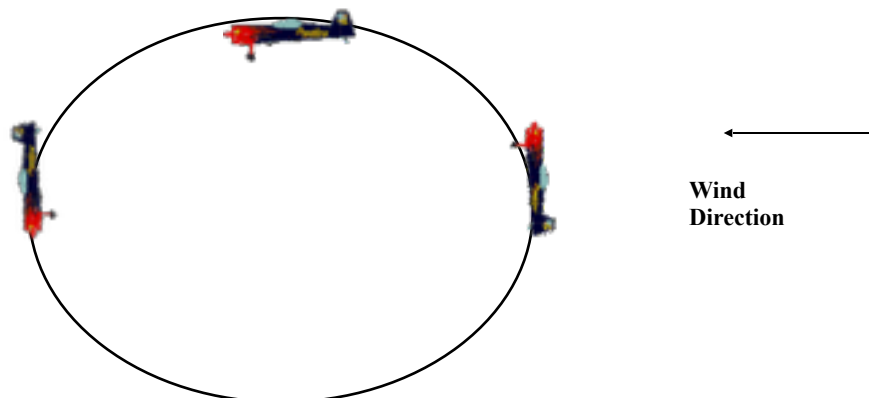
***Three Reverse Outside Loops***

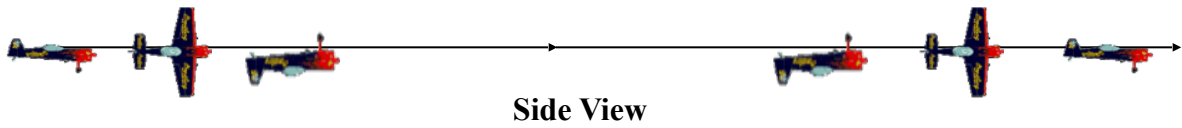
Model half rolls to inverted, pauses for approximately one second, pushes up to execute three consecutive outside loops, pauses for approximately one second then half rolls to level flight.

**Downgrades:**

- Loops not round.
- Loops not superimposed.
- Changes in heading during loops and rolls.
- Wings not level during loops.
- Model does not pause for one second before and after loops.

**Diagram**





Wings      A B C D  
Level

**Applies to:**              X

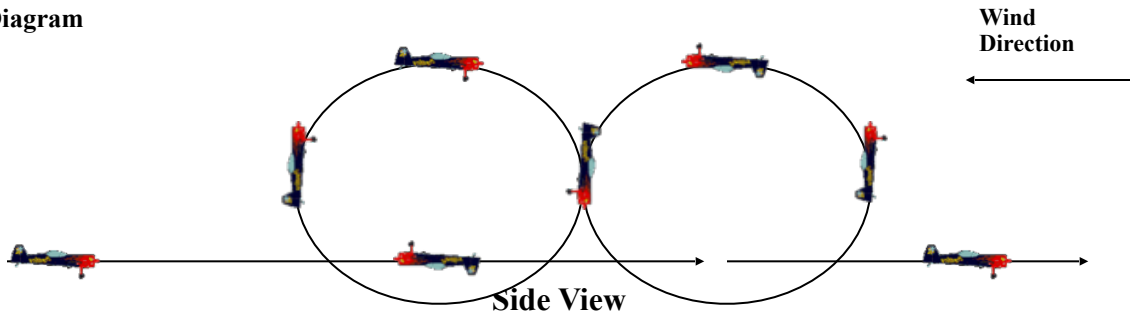
***Horizontal Eight***

Model pulls up and completes 3/4 of an inside loop to a vertical position then does a complete outside loop to a vertical position again then recovers by completing a 1/4 inside loop.

**Downgrades:**

- Loops not round.
- Model not vertical at cross-over points.
- Changes in heading during loops.
- Loops not the same diameter.
- Loops not at same altitude.
- Model does not cross over at same point.

**Diagram**



Wings      A B C D  
Level

**Applies to:**              X

***Four Point Roll***

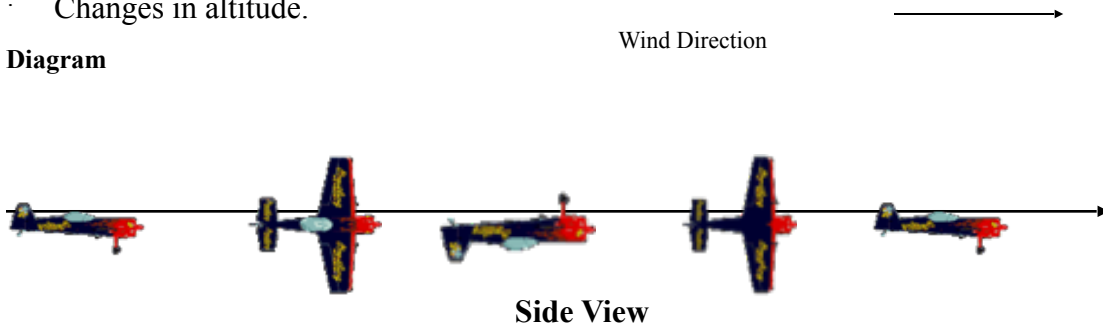
Model rolls through 360 degrees, hesitation at each 90 degree point. At each hesitation wings are either 90 or 180 degrees to the horizon.

**Downgrades:**

- 1/4 rolls are more or less than 90 degrees.

- Model does not hesitate at each 1/4 roll point.
- Roll rate not constant.
- Changes in altitude.

**Diagram**



Wings      A   B   C   D  
Level

**Applies to:**                      X

### ***Three Turn Spin***

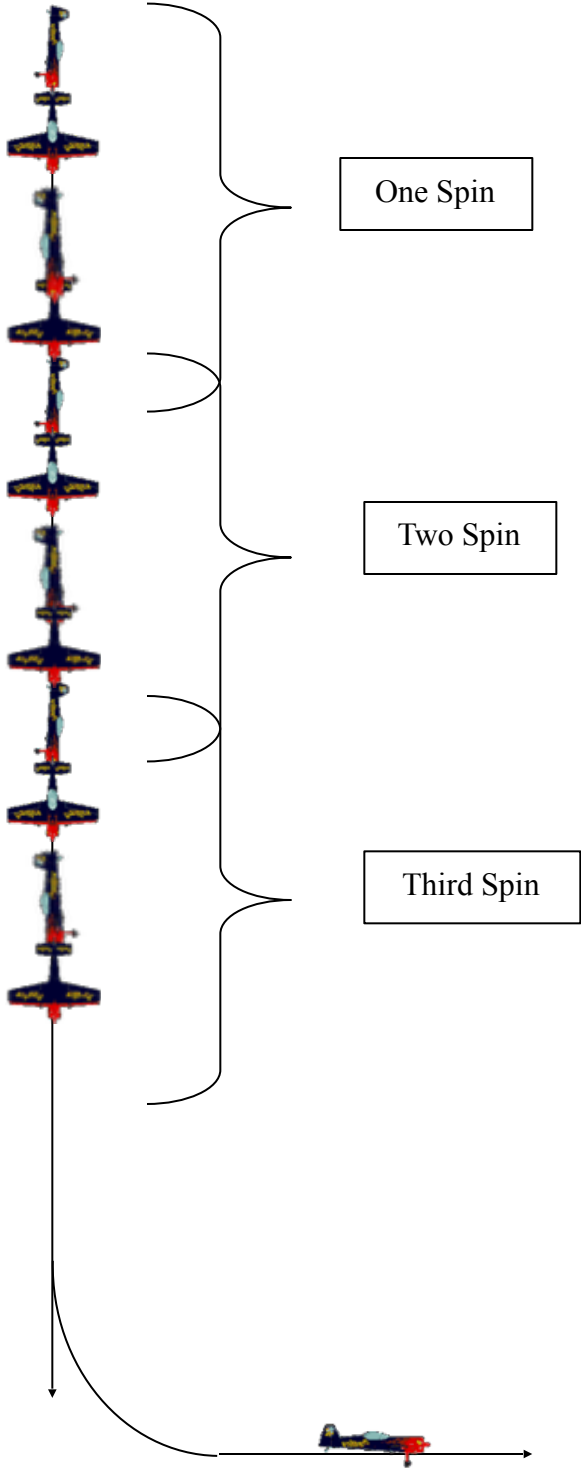
The model establishes a heading, power is reduced, the model is held in a slightly nose high attitude until it stalls and commences to spin. The model will autorotate through three complete turns and recover on the same heading but at a lower altitude.

#### **Downgrades:**

- Entry not level.
- Does not make three turns. Two or less, and four or more score zero.
- Does not finish on same heading.
- Wings not level during recovery.
- Spiral dive scores zero on maneuver.

**Diagram**





**Side View**

Wings	A	B	C	D
Level				
<b>Applies to:</b>			X	

# “A” Wings – Basic Control

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Examiner: \_\_\_\_\_

<b>Maneuver</b>	<b>1<sup>st</sup></b>	<b>2<sup>nd</sup></b>
<b>1. Take Off</b>		
<b>2. Straight Flight Out</b>		
<b>3. Flat Figure Eight</b>		
<b>4. Rectangular Approach</b>		
<b>5. Land Under Power</b>		
<b>Subtotal:</b>		
<b>Less General Downgrades</b>		
<b>Total</b>		

= \_\_\_\_\_ / 100 = \_\_\_\_\_ %

# “B” Wings - Intermediate

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Examiner: \_\_\_\_\_

Maneuver	1 <sup>st</sup>	2 <sup>nd</sup>
1. Take Off		
2. Straight Flight Out		
3. Procedure Turn		
4. Straight Flight Back		
5. Two Inside Loops		
6. One Horizontal Roll		
7. Rectangular Approach		
8. Land Under Power		
<b>Subtotal:</b>		
<b>Less General Downgrades</b>		
<b>Total</b>		

= \_\_\_\_\_ / 100 = \_\_\_\_\_ %



# “C” Wings - Intermediate Advanced

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Examiner: \_\_\_\_\_

Maneuver	1 <sup>st</sup>	2 <sup>nd</sup>
1. Take Off		
2. Stall Turn		
3. Two Horizontal Rolls		
4. Immelman Turn		
5. Cuban Eight		
6. Straight Inverted Flight		
7. One Outside Loop		
8. Landing		
<b>Subtotal:</b>		
<b>Less General Downgrades</b>		
<b>Total</b>		

= \_\_\_\_\_ / 100 = \_\_\_\_\_ %

# “D” Wings - Advanced

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Examiner: \_\_\_\_\_

Maneuver	1 <sup>st</sup>	2 <sup>nd</sup>
1. Take Off		
2. Stall Turn with Half Rolls		
3. Three Horizontal Rolls		
4. 3 Reverse Outside Loops		
5. Horizontal Eight		
6. Four Point Roll		
7. Three Turn Spin		
8. Landing		
<b>Subtotal:</b>		
<b>Less General Downgrades</b>		
<b>Total</b>		

= \_\_\_\_\_ / 100 = \_\_\_\_\_ %