

— NOTICE —

This is not the official IRCHA documentation.

I can no longer find the Pilot Proficiency Program on the current IRCHA website.

The following documentation is constructed from various sources.

I can no longer keep up with the IRCHA website relocation and reconstruction.

Al Coelho  
<http://www.rchelibase.com>



## **The Pilot Proficiency Program (PPP)**

### **Introduction**

There are seven Levels in the Pilot Proficiency Program of the International Radio Control Helicopter Association (IRCHA). Established by the Executive Committee, they have been designed in ascending complexity as you progress from Level I through Level VII. The program has been designed so that each member may develop his own piloting proficiency with radio controlled model helicopters by participating in this program on an individual honor system basis. Since the program has been designed to enable you to develop your own piloting skills to the highest degree possible, there would be little point in submitting the appropriate form if you have not, in reality, successfully completed the Level steps. Since the upper levels do require you to use skills learned at the lower levels, it would soon become apparent to other fliers that you had not actually completed the Levels for which you had been certified.

If you are an absolute beginner in radio controlled helicopter flying, or are just beginning to learn to hover, many of the steps in the various Levels will seem impossible to you. In truth, none of them are impossible and almost all standard helicopters today are capable of performing the maneuvers prescribed in the various Levels. It is up to you to develop your own piloting skills to a point where you can actually perform the prescribed maneuvers. Some of the more advanced maneuvers in the higher Levels may require slight modifications to your helicopter.

Do not let yourself be discouraged and do not worry about how long it takes to complete the program. It has been deliberately set up so that the highest Levels are extremely complex and, to the best knowledge of the Executive Committee, there are only very few individuals in the world today who can actually complete Level VII. But, since these individuals have come to a point of proficiency during the past few years where it is possible for them to accomplish this Level, it is also possible for you to work towards the same goal. It's not going to be easy and it's not going to come overnight. It might take 3, 4, or more years to reach Level VII.

The goal of the Program is to encourage each and every R/C helicopter flyer to participate in a uniform program that will enable him to gauge his own learning curve and to wear with pride the Level achievement patch which will be awarded by the Executive Committee upon receipt of your properly completed and witnessed Level Program sheet.

Accompanying this packet is your form for working towards Level I in the achievement program (coming online soon). IRCHA recommends that you go at it slowly and methodically until you have completed the program and had it duly witnessed. A witness may be anybody that understands what the maneuver you are trying to perform looks like. You only need one witness if that person has qualified for the level you are working toward or a higher level. Two witnesses are required if they are not IRCHA members or they have not yet qualified for the level you are attempting. At that time, return the form to the IRCHA address and you will receive your Level I achievement certificate and patch or pin along with the forms for Level II. No member of IRCHA may begin a higher Level until he has completed the lower levels and has filed the appropriate paperwork.

Good luck and don't be discouraged. What you will learn by continual practice through the various phases of this program will more than offset the minor setbacks and discouragement's you may incur as you attempt to complete each phase of the Program. As you work your way up through the different levels you can join the ranks of other pilots that have come before you. And you can be proud of the skills you have mastered.

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Let's all work together to become better helicopter pilots. And, above all, let's fly in a safe manner with constant consideration for the safety of spectators, pilots, their property, and for yourself.

I would like to personally thank Jim Holbrook, Gary Wright, Don Dewey, Cliff Hiatt, Tom Dooley, Jeff Robb, Sr., David Harkey, Ray Hostetler, Shaun Ettinger, Todd Bennett, Louis Hlousek, and Mike Smith for their input into this program, without their help and guidance this program would not exist.

All best wishes and good flying.

Sincerely yours,

Bill Schatz

IRCHA Secretary

P.S. Since we are just starting this program, we would like to hear from you, the member, and help us decide if you would like to have different patches or pins to denote the different levels of this program. There may be a cost associated with either patches or pins but we would like to know which you would rather have.

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## **Objectives**

Pilot Proficiency Program

31 March, 1998

### **PURPOSE:**

To both measure and increase pilot proficiency by providing a measurable and observable manner of comparison and documentation. Provide motivational stimulus to encourage pilots to improve their proficiency. Provide a pilot with some recognition for their hard work.

### **GOALS:**

- I. Define a program identifying the levels of proficiency and the components of those levels.
- II. Provide a method in which to give a pilot recognition for work.
- III. Provide a program that is clear and definite in its purpose.
- IV. Levels must be attainable.
- V. Levels must be observable.
- VI. Levels must be measurable.
- VII. Program must be modifiable when necessary.
- VIII. Program must be relatively easy to administrate.

### **OBJECTIVES:**

- I. Level I - is the most basic of the program and is characterized by the pilot becoming SAFE and Proficient in a Hover and its related phases. Pilot position for most of the maneuvers shall be from the position of Tail-in towards the pilot. Class I of the AMA Competition Rules contains most of the core ingredients with which to build.
- II. Level II - is an intermediate level of proficiency and completion of this level takes the pilot to a well-rounded pilot capable of performing Basic Flight skills. Intrinsic to this level is successfully completing all components of Level I, then advancing to the ability to FLY the Helicopter in circuits.
- III. Level III - is an advanced level of proficiency and should be characterized by the pilot's ability to perform both Level I and Level II maneuvers, plus the addition of basic acrobatic maneuvers to include the Autorotation and Nose-In hovering.
- IV. Level IV and above - are highly advanced levels of proficiency characterized by having the pilot involved in Freestyle Flight.

## **LEVEL I**

Take-off  
Stationary Hover  
Hovering Laterally  
Multiple-level Hover  
3/4 Rear View Hovering  
Full Lateral View Hovering  
Diagonal Hovering  
Circle Hovering

- Tail-in Circle
- Constant Heading Circle

## **LEVEL II**

Completed Level I  
Taxi Out  
Climb-Out  
90 degree turns  
Flying Box  
180 degree turns  
Straight and Level Flight  
Figure of Eight - Hovering - Constant Heading  
Figure of Eight - "Lazy 8"  
Figure of Eight - Flying  
Traffic Pattern Approach to landing  
Translational Descent  
Landing  
Beginning Aerobatics

- Stall Turn
- Inside Loop
- Pirouette

## **LEVEL III**

Completed all previous Levels  
Nose-In Hover  
Nose-In Circle  
Take-off from Nose-In  
Land from Nose-In Hover.  
Basic Aerobatics (Unusual Attitudes Training)

- 540 Stall Turn
- Horizontal Roll
- Immelman Turn
- 1/2 Cuban Eight
- Loop with a Pirouette at the top
- Flying Circle
- Figure of Eight - Nose-In and Tail-In
- Autorotation Landing

## **LEVEL IV**

Completed all previous Levels  
Sustained Inverted flight  
Sustained Inverted Hover  
Inverted pirouettes  
Inverted Figure of Eight - Flying  
Stationary Rolls  
Autorotation 180 Degrees  
Advanced Aerobatics

- Flips Forward
- Flips Backward
- Flips Laterally
- Rolling Circle
- Tumbles

## **LEVEL V**

Completed all previous Levels  
Backward Flight straight  
Backward Figure of Eight - Flying  
Backward Flying Loops  
Backward Rolls  
Backward Inverted Flight  
Backward Inverted Figure of Eight - Flying  
Autorotation with Inverted Segment  
Advanced Aerobatics

- Knife Edge Pirouette
- Death Spiral

## **LEVEL VI**

Completed all previous Levels  
Sideways Loop  
Sideways Roll  
Sideways Outside Loop  
Pirouetting Figure 8  
Inverted Pirouetting Figure 8

## **LEVEL VII**

Completed all previous Levels  
Pirouetting Loop  
Pirouetting Roll  
Pirouetting Tumble  
Pirouetting Outside Loop  
Pirouetting Autorotation



Level I is the most basic of the program and is characterized by the pilot becoming SAFE and Proficient in the Hover and its related phases. Pilot position for most of the maneuvers shall be from the position of Tail-in towards the pilot.

**Maneuver Description**

A. Take-off

The take-off should be performed straight up from the landing area, at a constant rate of climb, with little lateral deviations. Come to a complete stop without any vertical bounce or dip, and little to no lateral wobble or drifting. The landing area is defined as a 36"/(1 meter) diameter circle.

B. Stationary Hover

1. After the take-off, coming to a complete stop with little to no vertical bounce, dip, lateral drifting, or wobble.
2. Hold in the Stationary Hover for one (1) minute.
3. The Stationary Hover should give the appearance of being under total control.

C. Hover Laterally

1. From take-off area hover forward ten (10) feet, hold for ten (10) seconds.
2. From there hover backward twenty (20) feet, hold for ten (10) seconds.
3. From there hover forward ten (10) feet until you are over the landing area, then hover to the left ten (10) feet, hold for ten (10) seconds.
4. From there hover to the right twenty (20) feet, hold for ten (10) seconds.
5. From there hover back to the left ten (10) feet until you are over the landing area.
6. Land with the skids completely within the landing area.

D. Multiple-level Hover

1. Take-off, hover for five (5) seconds.
2. Climb straight up two (2) meters; hold for five (5) seconds.
3. Descend vertically two (2) meters; hold for five (5) seconds.
4. Land with the skids completely within the landing area.

E. 3/4 Rear View Hovering

1. Take-off to Hover, Hold for five (5) seconds.
2. Rotate the nose of the Helicopter either left or right forty-five (45) degrees, hold for five (5) seconds.
3. Rotate the nose of the Helicopter back to straight ahead, hold for five (5) seconds.
4. Continue rotating the nose of the helicopter forty-five (45) degrees to the other side, hold for five (5) seconds.
5. Rotate the nose back to straight ahead, hold for five (5) seconds.
6. Land with the skids completely within the landing area.

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F. Full Lateral View Hovering

1. Same as 3/4 View Hovering, but in steps 2 and 4 rotate ninety (90) degrees instead of forty-five (45) degrees.

G. Diagonal Hovering

1. After take-off from the landing area within center of a 10 meter/yard box, from Stationary Hover, maintaining a constant heading, move the helicopter diagonally to a corner of the box, hold for five (5) seconds, then return to the center of the box.
2. Repeat with the remaining 3 corners of the box.
3. Land with the skids completely within the landing area.

H. Circle Hovering

1. Tail-in Circle

- a. Take-off, hold hover for five (5) seconds.
- b. Move the helicopter to the right; keeping the tail pointed at the pilot, in a circle around the pilot, until the helicopter is hovering over the take-off point.
- c. Move the Helicopter to the left, repeating step b above.
- d. Land with the skids completely within the landing area.

2. Constant Heading Circle

- a. Take-off, hold hover for five (5) seconds.
- b. Move the helicopter to the right, keeping the tail pointed in the same direction; complete a ten (10) meter circle in front of the pilot until the helicopter is hovering over the take-off point.
- c. Move the Helicopter to the left, repeating step b above.
- d. Land with the skids completely within the landing area.



Level II is an intermediate level of proficiency and completion of this level takes the pilot to the level of a well rounded pilot capable of performing Basic Flight skills. Intrinsic to this level is successfully completing all components of Level I, then advancing to the ability to FLY the Helicopter in circuits.

**Maneuver Description**

A. Complete Level I

B. Taxi Out

1. Take-off from the landing area to an eye-level hover; hold momentarily.
2. Hover forward slowly for no less than ten (10) meters.
3. Turn into the prevailing wind direction and continue straight and level for no less than ten (10) meters.
4. Either proceed to Climb-Out or Land within the landing area circle.

C. Climb-Out

1. After Taxi Out, begin ascent by gradually increasing power/collective.
2. Continue to climb until an altitude of approximately fifty (50) feet.
3. Climb out should be parallel to flight path and at a moderate speed.

D. 90 Degree Turns

1. After climb out, turn 90 degrees in a direction away from pilot and spectators.

E. Flying Box

1. After completing the Climb out and first 90 degree turn continue to fly straight and level.
2. Execute another 90 degree turn, same direction as before.
3. Continue as before until a box or rectangle has been formed.

F. 180 Degree Turns

1. While flying straight and level, execute a turn hold this turn until the helicopter has come around back to the same direction it has just come from, straighten out and continue in straight and level flight.
2. Turns should be made turning away from the pilot to the right and left.
3. Turns should be made turning toward the pilot to the right and left.

G. Straight and Level Flight

1. Fly from the Left to the Right.
2. Fly from the Right to the Left.

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H. Figure of Eight - Constant Heading, Hovering

1. Take-off to eye-level, hold momentarily.
2. While maintaining constant altitude, speed and heading begin a forward hovering circle to either the right or the left.
3. As the helicopter reaches the take off point continue hovering forward and complete a circle in the opposite direction from before.
4. Stop over take off point, descend vertically and land completely within the landing circle.

1. Figure of Eight - "Lazy 8"

1. With the helicopter flying straight and level after it passes the pilot make a turn that is greater than 180 degrees away from the pilot.
2. After the helicopter passes in front of the pilot, execute another turn that is greater than 180 degrees, away from the pilot.
3. This maneuver must be done flying from both left to right (first turn to the left, counter-clockwise) and right to left (first turn to the right, clockwise).

J. Figure of Eight - Flying

1. With the helicopter flying straight and level after it passes the pilot make a 270 degree turn away from the pilot; the helicopter will now be pointed directly at the pilot.
2. After the helicopter is pointing at the pilot, execute a 360 degree turn in the opposite direction. The helicopter will again be pointing directly at the pilot.
3. After the helicopter is pointing at the pilot again, execute a 90 degree turn, in the same direction as the first 270 degree turn.
4. This maneuver must be done starting from both left to right (first 270 degree turn to the left, counter-clockwise) and right to left (first 270 degree turn to the right, clockwise).

K. Traffic Pattern Approach to Landing

1. From straight and level flight, after the helicopter passes the pilot execute a 180 degree turn away from the pilot.
2. Start to reduce speed and power.
3. After the helicopter passes the pilot execute a 180 degree turn towards; continue to reduce power/collective so as to descend at a gradual angle to the landing zone.
4. This must be done starting from both the right and the left.

L. Translational Descent

1. This is similar to the Traffic Pattern Approach, but the descent angle should be much greater (about 45 degrees) and the descent continues all the way to the landing.
2. This must be done starting from both the right and the left.

M. Landing

1. This landing is to be completed as part of a Translational Descent, but this has the added requirement that both the take off and landing must be within a one (1) meter circle. The skids must be completely within the landing circle.
2. This must be done starting from both the right and the left.

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## N. Beginning Aerobatics

### 1. Stall Turn

- a. Starting from straight and level flight after the helicopter passes the pilot the helicopter is smoothly pulled vertical (Aft Cyclic).
- b. When the vertical climb stops, the helicopter is rotated 180 degrees about the yaw axis.
- c. The helicopter is allowed to fall the same distance that it climbed at the beginning of the maneuver before pulling the helicopter back to straight and level flight.
- d. This maneuver must be done both to the right and the left of the pilot.

### 2. Inside Loop

- a. Starting from straight and level flight after the helicopter passes the pilot the helicopter is smoothly pulled through a loop (Aft Cyclic).
- b. As the helicopter is “on its back” the pilot should reduce collective so as to keep the loop as round as possible.
- c. This maneuver must be done starting from both the right and the left of the pilot.

### 3. Pirouette

- a. From a stationary hover, execute a tail rotor only turn of 360 degrees to either the right or the left.
- b. This maneuver must be done in both directions, to the right (clockwise) and the left (counter-clockwise).



Level III is an advanced intermediate level of proficiency and completion of this level takes the pilot to the level of a pilot capable of performing all Upright Flight skills. Intrinsic to this level is successfully completing all components of both Level II, and I and then advancing to the ability to control the Helicopter in all upright orientations.

**Maneuver Description**

A. Complete Level I & II

B. Nose-in - Hover

1. Take-off from the landing area (a 36" or 1 meter circle) to an eye-level hover; hold momentarily.
2. Either Pirouette or Fly and stop in the Nose-in condition, the preferred method is to Pirouette to nose-in.
3. Hold in the Stationary Nose-in Hover for one (1) minute.
4. The Stationary Hover should give the appearance of being under total control.
5. Land with the skids completely within the landing area.

C. Nose-in - Circle

1. Take-off, move into a Nose-in Hover, hold hover for five (5) seconds.
2. Move the helicopter to the right, keeping the tail pointed away from the pilot, in a circle around the pilot, until the helicopter is hovering over the take-off point.
3. Move the Helicopter to the left, repeating step 2 above.

D. Nose-in - Take-off

1. With the Helicopter in the landing area, and the pilot standing a SAFE distance, in front of the helicopter.
2. Take-off into a Nose-in hover

E. Nose-in - Landing

1. From a Stationary Nose-in Hover.
2. Land while still Nose-in, with the skids completely within the landing area.

F. Basic Aerobatics (Unusual Attitudes Training)

1. 540 Stall Turn
  - a. Start by performing a Stall Turn similar to that in Level II.
  - b. Instead of rotating the helicopter only 180 degrees this time rotate the helicopter 540 degrees (1-1/2 revolutions).
  - c. This maneuver must be done both to the right and the left of the pilot.
2. Horizontal Roll
  - a. Helicopter flying straight and level.
  - b. Then rolls slowly through one (1) complete revolution.
  - c. This maneuver must be done from the right to the left and from the left to the right.
3. Immelmann Turn

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- a. Helicopter flying straight and level.
  - b. Then perform 1/2 loop, to inverted.
  - c. Then helicopter performs 1/2 roll to upright.
  - d. Fly straight and level.
  - e. This maneuver must be done starting from both the right and the left of the pilot.
4. 1/2 Cuban Eight
- a. Helicopter flying straight and level.
  - b. Then perform 5/8 loop, helicopter should be inverted on a 45 degree down line.
  - c. Then helicopter performs 1/2 roll to upright.
  - d. Level out and fly straight and level.
  - e. This maneuver must be done starting from both the right and the left of the pilot.
5. Loop w/Pirouette at the Top
- a. Start by performing a Loop similar to that in Level II.
  - b. When the helicopter is inverted add enough negative pitch to support the helicopter and remove the Aft cyclic control.
  - c. Perform a Pirouette while inverted.
  - d. Complete the Loop as normal.
  - e. This maneuver must be done once with the Pirouette to the right and once with the Pirouette to the left.
6. Flying Circle
- a. Starting from a tail-in hover, rotate the helicopter 90 degree.
  - b. Fly in a circle back to the starting point, while maintaining constant altitude, and speed.
  - c. This maneuver must be done circling both clockwise and counter-clockwise.
7. Figure of Eight - Nose-In, Tail-In
- a. Take-off to eye-level, hold momentarily, hover the helicopter out to a SAFE distance and height before starting this maneuver.
  - b. While maintaining constant altitude, speed and heading begin a circle to either the right or the left with the tail of the helicopter pointing to the center of the circle.
  - c. As the helicopter reaches the starting point continue hovering, but in a circle in the opposite direction from before and with the nose of the helicopter pointing to the center of the circle.
  - d. This maneuver must be done starting the nose-in circle both clockwise and counter-clockwise.
8. Autorotation Landing
- a. Starting from an altitude of no less than twenty (20) meters and on a heading parallel to the flight line, start your Autorotation.
  - b. Try for a smooth constant rate of descent directly to a one (1) meter landing circle.
  - c. The tail blades must stop before the helicopter touches the ground.
  - d. All of the helicopters landing skids must be within the landing circle.
  - e. This maneuver must be done starting from the right and from the left of the pilot. The pilot may stand anywhere they wish during this maneuver.

**International Radio Control Helicopter Association  
Pilot Proficiency Program**

**Level IV**

4 November 1998



Level IV is an advanced level of proficiency and completion of this level takes the pilot to the level of a pilot capable of performing the beyond the basics of Inverted flight. Intrinsic to this level is successfully completing all components of the previous levels then advancing to the ability to control the Helicopter in these new orientations. Please use extreme caution when performing these advanced maneuvers the pilots and spectators' safety is of utmost importance.

**Note: To get credit for a maneuver all required variations must be demonstrated.**

**Maneuver Description**

- A. Complete Level I, II & III
  
- D. Sustained Inverted Flight (2 required variations)
  - 1. With the helicopter inverted fly at least one (1) clockwise and one (1) counter clockwise circuit around your flying area.
  - 2. The idea is to learn to control the helicopter as it is turning towards you and away from you.
  
- C. Sustained Inverted Hover (2 required variations)
  - 1. With the helicopter inverted and no more than ten (10) yards/meters above the landing area hover nose out, hold for ten (10) seconds.
  - 2. With the helicopter inverted and no more than ten (10) yards/meters above the landing area hover nose in, hold for ten (10) seconds.
  
- D. Inverted Pirouettes (2 required variations)
  - 1. With the helicopter inverted and no more than ten (10) yards/meters above the landing area hover nose out, hold for ten (10) seconds.
  - 2. While maintaining a constant altitude use the tail rotor to rotate the helicopter clockwise 90 degrees, hold for ten (10) seconds.
  - 3. While maintaining a constant altitude use the tail rotor to rotate the helicopter clockwise 90 degrees, the helicopter will now be Nose-In, hold for ten (10) seconds.
  - 4. While maintaining a constant altitude use the tail rotor to rotate the helicopter clockwise 90 degrees, hold for ten (10) seconds.
  - 5. While maintaining a constant altitude use the tail rotor to rotate the helicopter clockwise 90 degrees, the helicopter will back to Nose-Out hold for ten (10) seconds.
  - 6. Repeat but rotate the helicopter counter-clockwise.
  
- E. Inverted Figure of Eight - Flying (2 required variations)
  - 1. While the helicopter is flying straight and level inverted after it passes the pilot make a 270 degree turn away from the pilot, the helicopter will now be pointed directly at the pilot.
  - 2. After the helicopter is pointing at the pilot, execute a 360 degree turn in the opposite direction. The helicopter will again be pointing directly at the pilot.
  - 3. After the helicopter is pointing at the pilot again, execute a 90 degree turn; in the same direction as the first 270 degree turn.
  - 4. This maneuver must be done starting from both left to right (first 270 degree turn to the left,

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counter-clockwise) and right to left (first 270 degree turn to the left, counter-clockwise).

F. Two Consecutive Stationary Rolls (4 required variations)

1. With the helicopter hovering Tail-In, add right cyclic and flip the helicopter to inverted continue until the helicopter has completed 2 rolls to the right.
2. With the helicopter hovering Tail-In, add left cyclic and flip the helicopter to inverted, continue until the helicopter has completed 2 rolls to the left.
3. With the helicopter hovering Nose-In, add right cyclic and flip the helicopter to inverted continue until the helicopter has completed 2 rolls to the right.
4. With the helicopter hovering Nose-In, add left cyclic and flip the helicopter to inverted, continue until the helicopter has completed 2 rolls to the left.

G. 180 Degree Autorotation (4 required variations)

1. Starting from an altitude of no less than twenty (20) meters and on a heading parallel to the flight line, start your Autorotation.
2. Try for a smooth constant rate of descent directly to a one (1) meter landing circle.
3. The helicopter must complete a 180 degree turn after the Autorotation has started.
4. All of the helicopters landing skids must be within the landing circle.
5. This maneuver must be done starting from the right and from the left of the pilot and the 180 degree turn must be done both clockwise and counter-clockwise from each direction. The pilot may stand anywhere they wish during this maneuver.

H. Advanced Aerobatics

Note: Use the Collective control to maintain as constant altitude as possible during these maneuvers.

1. Flips Forward (2 required variations)

- a. With the helicopter hovering Tail-In, add forward cyclic and flip the helicopter to an inverted Nose-In hover, hold for five (5) seconds.
- b. From this inverted Nose-In hover add forward cyclic and flip the helicopter back to an upright Tail-In hover, hold for five (5) seconds.
- c. With the helicopter hovering Nose-In, add forward cyclic and flip the helicopter to an inverted Tail-In hover, hold for five (5) seconds.
- d. From this inverted Tail-In hover add forward cyclic and flip the helicopter back to an upright Nose-In hover, hold for five (5) seconds.

2. Flips Backward (2 required variations)

- a. With the helicopter hovering Tail-In, add backward cyclic and flip the helicopter to an inverted Nose-In hover, hold for five (5) seconds.
- b. From this inverted Nose-In hover add backward cyclic and flip the helicopter back to an upright Tail-In hover, hold for five (5) seconds.
- c. With the helicopter hovering Nose-In, add backward cyclic and flip the helicopter to an inverted Tail-In hover, hold for five (5) seconds.
- d. From this inverted Tail-In hover add backward cyclic and flip the helicopter back to an upright Nose-In hover, hold for five (5) seconds.

3. Flips Laterally (4 required variations)

- a. With the helicopter hovering Nose-Left, add right cyclic and flip the helicopter to an inverted Nose-Left hover, hold for five (5) seconds.
- b. From this inverted Nose-Left hover add right cyclic and flip the helicopter back to an upright Nose-Left hover, hold for five (5) seconds.

- c. Repeat but use left cyclic instead of right cyclic.
  - d. With the helicopter hovering Nose-Right, add right cyclic and flip the helicopter to an inverted Nose-Right hover, hold for five (5) seconds.
  - e. From this inverted Nose-Right hover add right cyclic and flip the helicopter back to an upright Nose-Right hover, hold for five (5) seconds.
  - f. Repeat but use left cyclic instead of right cyclic.
4. Rolling Circle (4 required variations)
- a. Fly a clockwise circle while rolling the helicopter to the right.
  - b. Repeat flying a clockwise circle, but this time rolling the helicopter to the left.
  - c. Fly a counter-clockwise circle while rolling the helicopter to the right.
  - d. Repeat flying a counter-clockwise circle, but this time rolling the helicopter to the left.
5. Tumbles (8 required variations)
- a. With the helicopter hovering Tail-In pull back cyclic, and work the collective to complete at least two (2) full back tumbles while maintaining a constant altitude and heading. Stop the helicopter in a stable Tail-In hover.
  - b. Repeat; push forward cyclic completing a minimum of two (2) forward tumbles.
  - c. With the helicopter hovering Nose-In pull back cyclic, and work the collective to complete at least two (2) full back tumbles while maintaining a constant altitude and heading. Stop the helicopter in a stable Nose-In hover.
  - d. Repeat; push forward cyclic completing a minimum of two (2) forward tumbles.
  - e. Fly straight and level from left to right when the helicopter is just about in front of the pilot pull back cyclic, adjust the collective to maintain constant altitude and speed and hold the back cyclic until the helicopter completes one (1) full traveling tumbling back flip to upright. Fly away straight and level.
  - f. Repeat but start flying from right to left.
  - g. Fly straight and level from left to right when the helicopter is just about in front of the pilot add extra collective momentarily, simultaneously push forward cyclic, and adjust the collective to maintain constant altitude and speed and hold the forward cyclic until the helicopter completes one (1) full traveling tumbling front flip to upright. Fly away straight and level.
  - h. Repeat but start flying from right to left.

**Optional non-required variations:** The following suggested variations are not required to reach this level of the Pilot Proficiency Program, but are listed here as suggestions for the pilot to learn additional orientations and improve their overall flight skills. Stationary tumbles with the nose pointing left, and right. Stationary and traveling tumbles from inverted.

**International Radio Control Helicopter Association  
Pilot Proficiency Program**

**Level V**

10 November 1998



Level V is an advanced level of proficiency and completion of this level takes the pilot to the level of a pilot capable of performing beyond the basics of backward flight. Intrinsic to this level is successfully completing all components of the previous levels then advancing to the ability to control the Helicopter in these new orientations. Please use extreme caution when performing these advanced maneuvers the pilots and spectators' safety is of utmost importance.

**Note: To get credit for a maneuver all required variations must be demonstrated.**

**Maneuver Description**

A. Completed Levels I, II, III, & IV

D. Sustained Backward Flight (2 required variations)

1. With the helicopter upright, fly backward for at least one (1) clockwise and one (1) counter clockwise circuits around your flying area.

Note: The idea is to learn to control the helicopter as it is turning towards you and away from you.

C. Sustained Backward Figure of Eight - Flying (2 required variations)

1. With the helicopter hovering pointing to the left over the landing area move the helicopter backward to the right, then perform a 270-degree turn. The Helicopter should be flying backwards directly at the pilot.
2. While maintaining constant altitude and speed execute a 360-degree turn, in the opposite direction, the helicopter should flying directly at the pilot again.
3. Perform a 90 degree turn, in the same direction as the first 270 degree turn fly away straight and level and then fly backwards to the starting point above the landing area.
4. With the helicopter hovering Nose-In over the landing area move the helicopter backward away from the pilot perform a 360-degree turn. The Helicopter should be flying backwards directly away from the pilot.
5. While maintaining constant altitude and speed execute another 360-degree turn, in the opposite direction, the helicopter should be flying directly away from the pilot again.
6. To complete this maneuver, fly backward to a hover above the landing area.

D. Sustained Backward Flight - Inside Loops (2 required variations)

1. With the helicopter upright and flying backward straight and level from the left to the right, when the helicopter is directly in front of the pilot push forward cyclic and execute a Tail first Inside Loop. Use the collective to make the Loop as round as possible.
2. Repeat, but this time starts by flying backwards from right to left.

**Optional Variations:** (Not required) Instead of pushing cyclic forward and performing an Inside Loop try pulling cyclic back and do a Backward Outside Loop.

E. Sustained Backward Flight - Rolls (4 required variations)

1. While the helicopter is flying straight and level backward from left to right, before it reaches the pilot roll the helicopter away from the pilot until completes one (1) roll. The helicop-

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ter should be flying inverted and backward as it passes in front of the pilot, the helicopter should continue to roll back to upright after it passes in front of the pilot. Use collective control to maintain constant altitude and speed. Fly away from the maneuver straight and level.

2. Repeat the above step but this time roll the helicopter toward the pilot.
3. Repeat the above steps but this time flying backward from the right to the left, and do both a roll to the left and to the right.

F. Sustained Backward Inverted Flight (2 required variations)

1. With the helicopter inverted fly backward for at least one (1) clockwise and one (1) counter clockwise circuits around your flying area.

**Note:** The idea is to learn to control the helicopter as it is turning towards you and away from you.

G. Sustained Backward Inverted Figure of Eight - Flying (2 required variations)

1. With the helicopter hovering inverted pointing to the left over the landing area move the helicopter backward to the right perform a 270 degree turn. The Helicopter should be flying backwards directly at the pilot.
2. While maintaining constant altitude and speed execute a 360 degree turn, in the opposite direction, the helicopter should flying directly at the pilot again.
3. Perform a 90 degree turn; in the same direction as the first 270 degree turn fly out straight and level and then fly backwards to the starting point above the landing area.
4. With the helicopter hovering Nose-In inverted over the landing area move the helicopter backward away from the pilot perform a 360 degree turn. The Helicopter should be flying backwards directly away from the pilot.
5. While maintaining constant altitude and speed execute a 360 degree turn, in the opposite direction, the helicopter should flying directly away the pilot again.
6. To complete this maneuver, fly backward to a hover above the landing area.

H. Autorotation with inverted segment (2 required variations)

1. Starting from an altitude of no less than twenty (20) meters and on a heading parallel to the flight line, with the helicopter inverted, and to the pilot's right start your Autorotation.
2. During the Autorotation roll the helicopter to upright.
3. Try for a smooth constant rate of descent directly to the one (1) meter/yard landing circle.
4. Any part of the helicopter's landing skids must be within the one (1) meter/yard landing circle.
5. Repeat, but this time start the Autorotation to the pilot's left.

**Notes:** There is not limit on the number of tries to complete this maneuver. Please note the change to the requirement of landing completely within the landing circle. For this maneuvers only the landing requirement is that at least part of the landing skids are within the landing circle.

1. Advanced Aerobatics

**Note:** Use the Collective control to maintain as constant altitude as possible during these maneuvers.

1. Knife Edge Pirouette (8 required variations)

- a. With the helicopter flying straight and level from right to left roll the helicopter to the left (toward the pilot), drop collective to zero degrees, and while the helicopter is in knife edge flight execute at least one (1) full tail rotor turn (360 degrees) to the

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right (clockwise). Exit by rolling to the right adding collective and fly away upright straight and level.

- b. Repeat step a, but this time make the tail rotor turn to the left (counter-clockwise).
- c. Repeat steps a, & b, but this time roll the helicopter to the right (away from the pilot). Exit by rolling back to the left.
- d. Repeat steps a, b, & c, but this time with the helicopter flying from left to right.

**Optional Variations:** (Not required) Instead of exiting with the helicopter upright exit the maneuver inverted, backward, or inverted and backward.

2. Death Spiral (4 required variations)

- a. With the helicopter hovering at a safe altitude roll the helicopter to the left, until the rotor blades are vertical, the helicopter must remain horizontal during this maneuver, drop collective and add forward cyclic.
- b. The helicopter must complete at least three (3) complete “forward” tumbles as it is falling sideways toward the ground.
- c. Roll back to the right to exit this maneuver.
- d. Repeat the above steps, but start the maneuver by rolling to the right, and exit by rolling to the left.
- e. Repeat the above steps, but use aft cyclic instead of forward cyclic completing at least three (3) “backward” tumbles.

**Optional Variations:** (Not required) Instead of exiting with the helicopter upright exit the maneuver inverted, also experiment with both positive and negative collective during the tumbling phase of the maneuver.

**International Radio Control Helicopter Association  
Pilot Proficiency Program**

**Level VI**                      20 November 1998



Level VI is an advanced level of proficiency and completion of this level takes the pilot to the level of a pilot capable of performing beyond the basics of sideways flight. Intrinsic to this level is successfully completing all components of the previous levels then advancing to the ability to control the Helicopter in these new orientations. Please use extreme caution when performing these advanced maneuvers the pilots and spectators' safety is of utmost importance.

**Note: To get credit for a maneuver all required variations must be demonstrated.**

**Maneuver Description**

A. Completed Levels I, II, III, IV, & V

D. Sideways Flight (4 required variations)

1. With the helicopter upright hovering Tail-in over the landing circle fly sideways for at least one (1) clockwise and one (1) counter clockwise circuit around your flying area. The nose of the helicopter must be pointing toward the center of the flight area.
2. With the helicopter upright hover Nose-in over the landing circle fly sideways for at least one (1) clockwise and one (1) counter clockwise circuit around your flying area. The nose of the helicopter must be pointing away from the center of the flight area.

Note: These maneuvers **must** be done a flying speed. The idea is to learn to control the helicopter as it is turning towards you and away from you.

C. Sideways Figure of Eight - Flying (4 required variations)

Note: This maneuver is similar to the Nose-In Tail-In Figure of Eight from Level III, but this is to be performed **at flying speed** not hovering speed.

1. With the helicopter hovering Nose-Out over the landing area move the helicopter sideways to the right perform a 270 degree Nose-In turn. The Helicopter should now be flying sideways directly at the pilot.
2. While maintaining constant altitude and speed execute a 360 degree Nose-Out turn, the helicopter should be flying sideways directly at the pilot again.
3. Perform a 90 degree Nose-In turn fly sideways straight and level, completing the maneuver. Fly back to the starting point above the landing area.
4. Repeat the maneuver but this time start flying sideways to the left.
5. With the helicopter hovering Nose-Right over the landing area move the helicopter sideways directly away from the pilot perform a 360 degree Nose-In turn. The Helicopter should now be flying sideways directly away from the pilot.
6. Complete the maneuver by performing a 360 degree Nose-Out turn. The Helicopter should again be flying sideways directly away from the pilot.
7. Repeat the maneuver but this time start with the helicopter hovering Nose-Left.

D. Sideways Inside Loops (4 required variations)

1. With the helicopter upright flying sideways Tail-In straight and level from left to right as the helicopter passes in front of the pilot apply collective and left cyclic to complete an inside loop.

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2. Repeat with the helicopter flying sideways from right to left, and right cyclic.
3. Repeat both of the above loops, but this time the helicopter must be Nose-In to the pilot.

E. Sideways Outside Loops (4 required variations)

1. With the helicopter upright flying sideways straight and level from left to right as the helicopter passes in front of the pilot apply collective and right cyclic to complete an outside loop.
2. Repeat with the helicopter flying sideways from right to left, and left cyclic.
3. Repeat both of the above loops, but this time the helicopter must be Nose-In to the pilot.

F. Sideways Rolls

Note: A “roll” while flying sideways can be thought of in two different ways: 1) In the normal way of rolling as a helicopter would normally fly or as 2) A roll as compared to the current direction of flight. So we will do both!

1. Sideways Rolls - Helicopter is Rolling (8 required variations)

- a. With the helicopter flying sideways Nose-Out straight and level from right to left roll the helicopter to the left (the same direction as the helicopter is flying), use collective to maintain altitude and speed across the ground, complete at least one roll. Exit by flying away sideways straight and level.
- b. Repeat step a, but this time make the roll to the right (opposite the direction the helicopter is flying).
- c. Repeat steps a, & b, but this with the helicopter Nose-In to the pilot.
- d. Repeat steps a, b, & c, but this time with the helicopter flying from left to right.

2. Sideways Rolls - Helicopter is Tumbling (8 required variations)

- a. With the helicopter flying sideways Nose-Out straight and level from right to left tumble the helicopter forward while traveling sideways, use collective to maintain altitude and speed across the ground, complete at least one tumble. Exit by flying away sideways straight and level.
- b. Repeat step a, but this time make the tumble backward.
- c. Repeat steps a, & b, but this with the helicopter Nose-In to the pilot.
- d. Repeat steps a, b, & c, but this time with the helicopter flying from left to right.

G. Pirouetting Figure of Eight (4 required variations)

1. With the helicopter hovering over the landing area start pirouetting clockwise while the helicopter is pirouetting fly the helicopter in a Figure of Eight to the right. So at the center of the Eight the helicopter is flying toward the pilot.
2. Repeat the above step but this time start pirouetting counter-clockwise.
3. Repeat step 1 above but this time start the Figure of Eight by flying away from the pilot, pirouetting clockwise. So at the center of the Eight the helicopter is flying away from the pilot.
4. Repeat the above step but this time start pirouetting counter-clockwise.

H. Inverted Pirouetting Figure of Eight (4 required variations)

1. With the helicopter inverted hovering over the landing area start pirouetting clockwise while the helicopter is pirouetting fly the helicopter in a Figure of Eight to the right. So at the center of the Eight the helicopter is flying toward the pilot.
2. Repeat the above step but this time start pirouetting counter-clockwise.
3. Repeat step 1 above but this time start the Figure of Eight by flying away from the pilot,

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pirouetting clockwise. So at the center of the Eight the helicopter is flying away from the pilot.

4. Repeat the above step but this time start pirouetting counter-clockwise.



Level VII is an advanced level of proficiency and completion of this level takes the pilot to the level of a pilot capable of performing beyond the basics of Pirouetting. Intrinsic to this level is successfully completing all components of the previous levels then advancing to the ability to control the Helicopter in these new orientations. Please use extreme caution when performing these advanced maneuvers the pilots and spectators' safety is of utmost importance.

**Notes: To get credit for a maneuver all required variations must be demonstrated.**

For these maneuvers the direction of the pirouettes are not specified and it is up to the pilot to determine the direction of rotation.

**Maneuver Description**

A. Completed Levels I, II, III, IV, V, & VI

D. Pirouetting Inside Loop (2 required variations)

1. With the helicopter flying from right to left; start pirouetting the helicopter; as it passes in front of the pilot execute one (1) inside loop while pirouetting. Time the input of the cyclic & collective commands such that the helicopter's path is that of a loop.
2. Exit by flying away straight and level while continuing to pirouette.
3. Repeat the above, but flying from left to right.

C. Pirouetting Roll (4 required variations)

1. With the helicopter flying from right to left, start pirouetting, before the helicopter passes in front of the pilot start a roll away from the pilot, while pirouetting. The helicopter should be inverted as it passes in front of the pilot. Time the input of the cyclic & collective commands such that the helicopter maintains constant altitude, heading, and speed.
2. Exit by completing the roll and fly away straight and level while continuing to pirouette.
3. Repeat the above, but roll toward the pilot.
4. Repeat both of the above, but flying from left to right.

D. Stationary Pirouetting Tumbles (4 required variations)

1. With the helicopter hovering, start pirouetting; execute at least one (1) forward tumble while pirouetting. Time the input of the cyclic & collective commands such that the helicopter maintains constant altitude.
2. Repeat the above, but tumble backward.

E. Traveling Pirouetting Tumbles (4 required variations)

1. With the helicopter flying from right to left, start pirouetting; execute at least one (1) forward tumble while pirouetting. Time the input of the cyclic & collective commands such that the helicopter maintains constant altitude, direction, & speed.
2. Repeat the above, but tumble backward.
3. Repeat both of the above, but flying from left to right.

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F. Pirouetting Outside Loop (2 required variations)

1. With the helicopter flying from right to left, start pirouetting; as the helicopter passes in front of the pilot execute one (1) outside loop while pirouetting. Time the input of the cyclic & collective commands such that the helicopter's path is that of a loop.
2. Exit by flying away straight and level while continuing to pirouette.
3. Repeat the above, but flying from left to right.

G. Pirouetting Autorotation (2 required variations)

1. Starting from an altitude of no less than twenty (20) meters and on a heading parallel to the flight line, and to the pilot's right start your Autorotation. The helicopter does not have to be pirouetting when the Autorotation starts.
2. During the Autorotation pirouette the helicopter a minimum of three (3) times.
3. Try for a smooth constant rate of descent directly to the one (1) meter/yard landing circle.
4. Any part of the helicopter's landing skids must be within the one (1) meter/yard landing circle.
5. Repeat the above but start the Autorotation from the pilot's left.

**Notes:** There is not limit on the number of tries to complete this maneuver. Please note the change to the requirement of landing completely within the landing circle. For this maneuvers only the landing requirement is that at least part of the landing skids are within the landing circle.