

So – you’ve pulled the helicopter out of the box, have flipped through the manual and thought:

*“Too many words... lots of buttons... I don’t know where to start”*

Fair enough. Helicopters are **complex things**. So, we’ve prepared this **quick guide**.

### Here’s what you’ve gotta do:

1. **Read and obey** all warnings and directions on the front of this manual and on the packaging.
2. **Insert batteries** into the controller. Use 6 high quality alkaline AA’s.
3. **Grab the charging lead** in the controller and pop it (gently) into the charging socket on the helicopter.
4. **Turn the remote control ON**. Leave it there for just over half an hour, then pull it out.
5. **Turn the helicopter ON**. You’ll see some LEDs light up.
6. **Move the left control stick** from **minimum** to **maximum** and **back** to **minimum**.
7. **Fly!**

### Controlling the Helicopter

**Moving up / down:** Use the left stick on the remote control.

**Turning Left / Right:** Move the right stick left or right.

**Moving forward / back:** Move the right stick forward or back.

### Adjusting Trim:

**Rudder:** Use the rudder trim adjustment knob, centre of controller.  
Adjusts the helicopters turning/spinning.

### What is this “trim” thingy?

If the helicopter is turning or moving when you don’t want it to, then you need to adjust the trim. Basically, it makes fine adjustments to the rotor speeds, and allows you to fine tune the helicopter’s sense of direction or change which way it tilts.

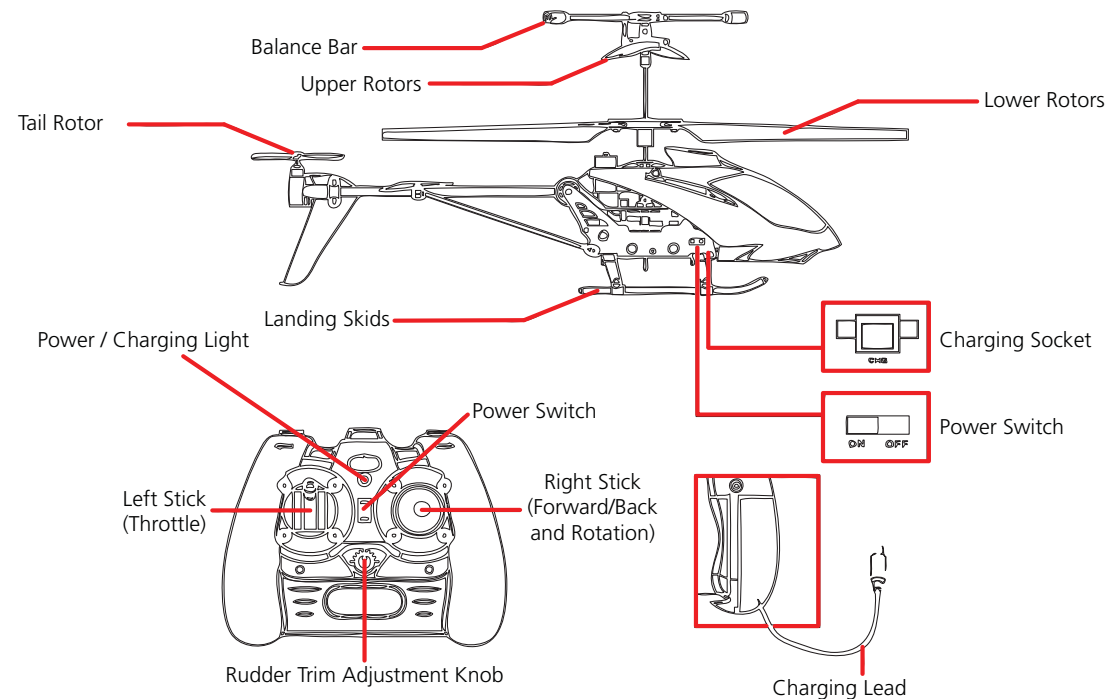
## Information

### Got questions or comments about this helicopter?

E-mail: [tech@swannsecurity.com](mailto:tech@swannsecurity.com)

Or visit our website - [www.swannsecurity.com](http://www.swannsecurity.com)

## Micro Lightning



Congratulations on your purchase of this remote control model helicopter from Swann! We were going to tell you all about how much fun these are, the tricks you can do and how many hours of enjoyment you’re going to get out of it, but we figure that if we just talk about how to fly it, you’ll discover the fun for yourself!

### WARNINGS : Read Before Use

#### 1. Exercise caution flying the helicopter around people or animals, especially small children.

The high-speed rotors could inflict serious damage to vulnerable areas such as the eyes, and may cause permanent disability. In fact, **don’t fly close to people** at all.

#### 2. Don’t overcharge the helicopter.

Ensure that it is not connected to a charger for more than an hour. Overcharging can damage the lithium battery in the helicopter, and could cause a fire.

#### 3. Don’t leave the helicopter unattended whilst charging.

#### 4. Don’t fly in high winds, around air conditioners or in other turbulent areas.

The helicopter can be damaged or lost. See the section on ‘Wind’ in the *Flying Guide*.

#### 5. These helicopters are scale models, not just toys.

Any younger children should be supervised by a competent adult at all times when using the helicopter.

#### 6. Use only fresh, quality alkaline AA batteries in the controller.

## Basic Principles of Flight

*Pairing the Remote:* Before you can fly, you need to 'pair' the helicopter and remote together. To do this, turn on both the helicopter and remote. Then, push the left stick to minimum. Aim the controller's IR transmitter at the helicopter. Move the left stick from minimum to maximum (bottom to top) and back again. The helicopter will now be paired to that controller.

*Moving up and down:* The helicopter moves up and down by varying the speed of its main rotors (those two big things that spin). You can control how fast these spin by using the left stick on the controller. Pushing the stick up will increase the throttle.

To get good results, be gentle and subtle. Very small adjustments made slowly and carefully are the best way to get the helicopter to fly well. Be careful when easing off the throttle – if the helicopter stalls (that is, doesn't have enough lift to stay in the air) it'll fall, and might not be able to recover in time even if you jam the throttle back on.

*Forward, Backwards and Rotation:* The right stick on the controller affects the helicopters direction, kind of like the right stick on a video game controller.

Pushing the right stick up will pitch the helicopter forwards. Whilst pitched in this way, the main rotors will push the helicopter along forwards. The opposite is also true – moving the right stick down will pitch the helicopter backwards and move it in reverse.

To rotate the helicopter, move the right stick to either side. This will cause the two main rotors to change their speeds, causing the body of the helicopter to spin on the spot.

By using the right stick at different angles and positions, you can design and execute some graceful, arcing turns. On the other hand, quick thrusts of the stick in different directions can create some unique tricks or stunts. Practise makes perfect!

*Trim (Rudder):* If you find that the helicopter is turning slowly left or right when you're not using the right stick on the controller, then you'll need to adjust the trim. The trim knob is located in the centre of the controller, between and just below the primary sticks.

You'll probably have to do this every couple of flights, but it only takes a moment. Basically, the trim 'fine-tunes' the speed of the rotor blades, and will help keep the helicopter flying straight.

If the helicopter is rotating clockwise (it's turning right from the imaginary miniature pilot's perspective) then rotate the trim knob counter-clockwise. If the helicopter is rotating counter-clockwise (it's turning left from the imaginary miniature pilot's perspective) then rotate the trim knob clockwise.

## Recharging and Battery Replacement:

There are two ways to charge the built-in lithium-polymer battery in the helicopter. Ensure the helicopter is turned OFF – otherwise it won't charge. It'll take 30 – 40 minutes to charge. Don't over-charge the helicopter, and don't leave it connected to a charger for more than an hour.

*Charge via USB:* Use the yellow USB/charging cable. Plug the USB end of the lead into a USB slot on your computer or a dedicated USB charger. Plug the other end into the charging socket on the side of the helicopter.

*Charge via Remote Control:* Open the charging lead compartment on the underside of the lower left hand corner of the remote control, and extend the charging lead. Turn the remote control ON. Plug the other end into the charging socket on the side of the helicopter. The LED on the remote control will appear RED whilst the helicopter is charging, and turn ORANGE when charging is complete.

*Replacing Batteries in the Controller:* The battery compartment is located on the rear of the controller. Undo the screw with a precision screwdriver and open the battery compartment. Only use alkaline batteries. Don't mix old and new batteries.

## Flying Guide

*Wind:* Basically, these are (approximately) 1/20th scale helicopters. Full sized helicopters can't fly in high winds – and neither can the models. If a full sized helicopter has difficulty overcoming 50mph winds, then the model will have the same difficulty with 2½mph winds (i.e. 1/20th as much). There's nothing that can be done about this, it's just physics.

*Air conditioning:* Hot air rises and cool air falls – this creates movement in the air, leading to an effect called "wind shear". Basically, this is when there's a column of hot air going up next to cold air going down. Many full-scale aircraft accidents have been caused by wind shear. Air conditioners create heaps of wind shear. If the helicopter flies through wind shear, it will seem to suddenly fly up or down (depending on the direction of the wind shear).

*The Ground Effect:* When the helicopter is near the ground, the air it pushes down with its rotor has nowhere to go – the ground is in the way. Some of this air bounces back, this pushes the helicopter up. When the helicopter is near the ground, it will get slightly more lift than it normally would. This is something to keep in mind when landing.

*The Ceiling Effect:* Conversely to the ground effect, when you fly too close to a ceiling, a small pocket of low pressure is created above the helicopter, and it will be sucked upwards. This could be bad – if you hit the ceiling, the helicopter will stall, fall and possibly be damaged.

*Multiple Helicopters:* If you're using more than one helicopter in a space at once, be very careful when setting the controller band and pairing them to the helicopters. You may find that the more than one helicopter will be controlled by a single controller, and this can lead to crashes, accidents, injuries or other very undesirable outcomes.

*Places to Fly:* Because high winds can be a problem, we recommend flying indoors. However, you really do need a bit of space to get the most out of the helicopter. Some places which are good for flight include large garages (whilst the car's not parked there), indoor sports

*Back & Forwards, Up & Down:* This helicopter features counter-rotating coaxial rotors (a fancy way of saying two rotors which spin in opposite directions) and a horizontal tail rotor. If you're any kind of expert on helicopters, you'll know that this is not the same way that full-scale helicopters are usually made – they've got a single, uni-directional main rotor with a vertical tail rotor. We think that this coaxial design works best for these scale models because:

- It's more stable than a single rotor. Because the rotors move in opposite directions, the helicopter has less of a tendency to spin the other way.
- It is way easier to set up. There's only one trim setting to get right, as opposed to the three trim settings that are required for the more conventional helicopter design.
- More rotors mean more lift, which means an easier to fly and more manoeuvrable helicopter.

However, because the tail rotor is horizontal rather than vertical, the helicopter has a tendency to ascend whilst moving forwards, and descend whilst reversing. This isn't really a problem if you ease off on the throttle whilst moving forward and increase the throttle whilst moving backwards. You'll get a feel for it pretty quick.