



NINJA 250 Single-Rotor Radio Control Helicopter with SwitchableCo-Pilot User Guide

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NINJA[®]

250

Full function single-rotor radio control model helicopter with switchable Co-Pilot technology.

TWISTER



- 15 minute flight time
- Altitude hold
- One-touch take-off
- One-touch landing
- 6-axis gyro stabilisation
- Panic shutdown mode
- Ultra durable airframe
- Spare main & tail blades



The Ninja 250 is available in both Red and Blue.



Convenient and fuss-free, the Ninja's unique wireless LiPo simply clicks into place.



A ball-raced main shaft and swashplate ensure the operational longevity of the robust composite rotor head.

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Introduction

Not by chance does the Ninja 250 share the same name as Twister's hugely successful 2011 original. Highly acclaimed in its day, the Mk.1 Twister Ninja was not only tough, rock solid in flight and dead easy to control, it offered a ground-breaking 10-minute duration. All enviable attributes that Twister's development team has been keen to reproduce in this revolutionary new machine. Equipped with state-of-the-art Co-Pilot technology, the high-performance Ninja 250 is noted as being one of the easiest to fly single-rotor R/C model helicopters currently

available. That alone is impressive, however, the 250 also retains all the performance and agility that's necessary to entertain experienced R/C pilots.

New to helicopter flying? Imagine a feature-packed flight system that not only offers rock-solid 6-axis gyro stabilization, plus novice and advanced flight modes, it also provides unique auto take-off and land functionality coupled to an advanced altitude hold system. Pretty neat, but there's more. From the highly efficient duration-optimized blade design to the bulletproof nylon reinforced carbon fiber tail boom, damage-limiting auto-shutdown feature, and outstanding 15-minute flight duration, no stone has been left unturned in Twister's desire to create a helicopter that's a technological leap ahead of the celebrated original.

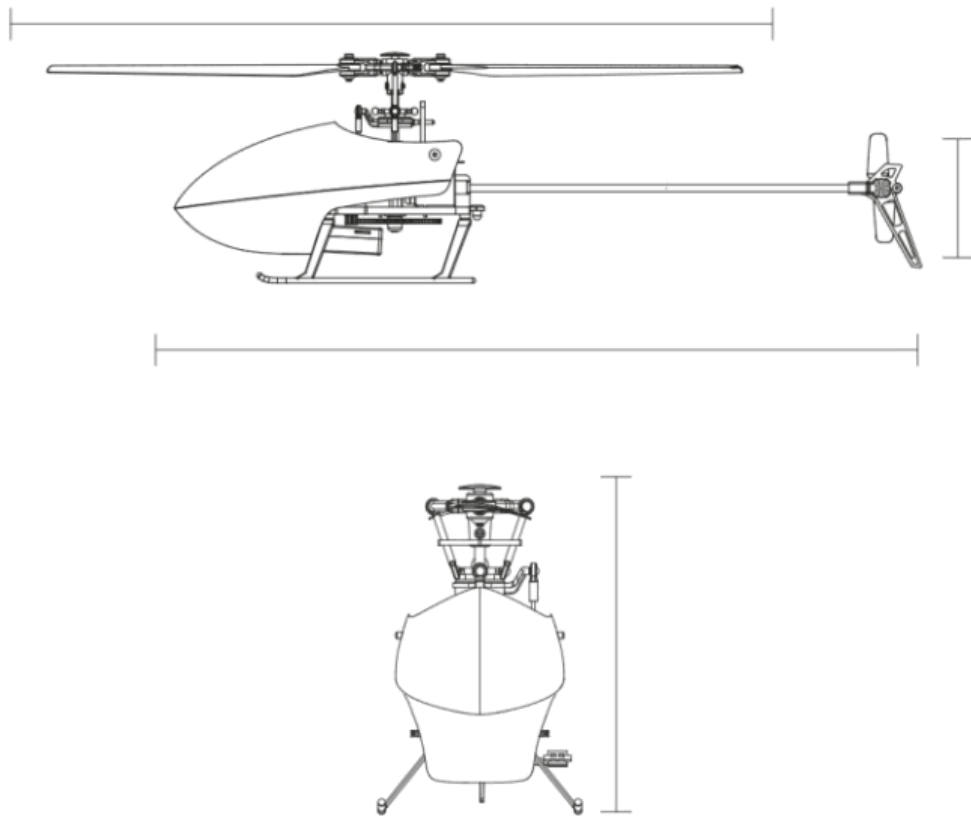
AGE RECOMMENDATION: NOT FOR CHILDREN UNDER 14 YEARS. THIS IS NOT A TOY

Safety precautions and warnings

- As the user of this product, you are solely responsible for operating it in a manner that does not endanger yourself and others or result in damage to the product or the property of others.
- Always keep your model a safe distance from persons and property to avoid collisions or injury.
- This model is controlled by a radio signal that is subject to interference from many sources that are outside your control. Interference can cause loss of control.
- Always operate your model in open spaces well away from full-size vehicles, aircraft, traffic, and people.
- Always follow the directions and safety warnings for this and any optional support equipment (chargers, rechargeable battery packs, etc.).
- Never expose the electronic parts of this model to water or moisture. Moisture causes damage to electronics.
- Never operate your model with low transmitter batteries.
- Always keep your model in sight and under control.
- Always use fully charged batteries.
- Always keep the transmitter powered ON while the vehicle is powered.
- Always remove batteries before disassembly.
- Always keep moving parts clean.

Specification

Length	268mm
Height	80mm
Weight	529
Main rotor diameter	250mm
Tail rotor diameter	37mm
Battery	300mAh
Flight time	15 minutes

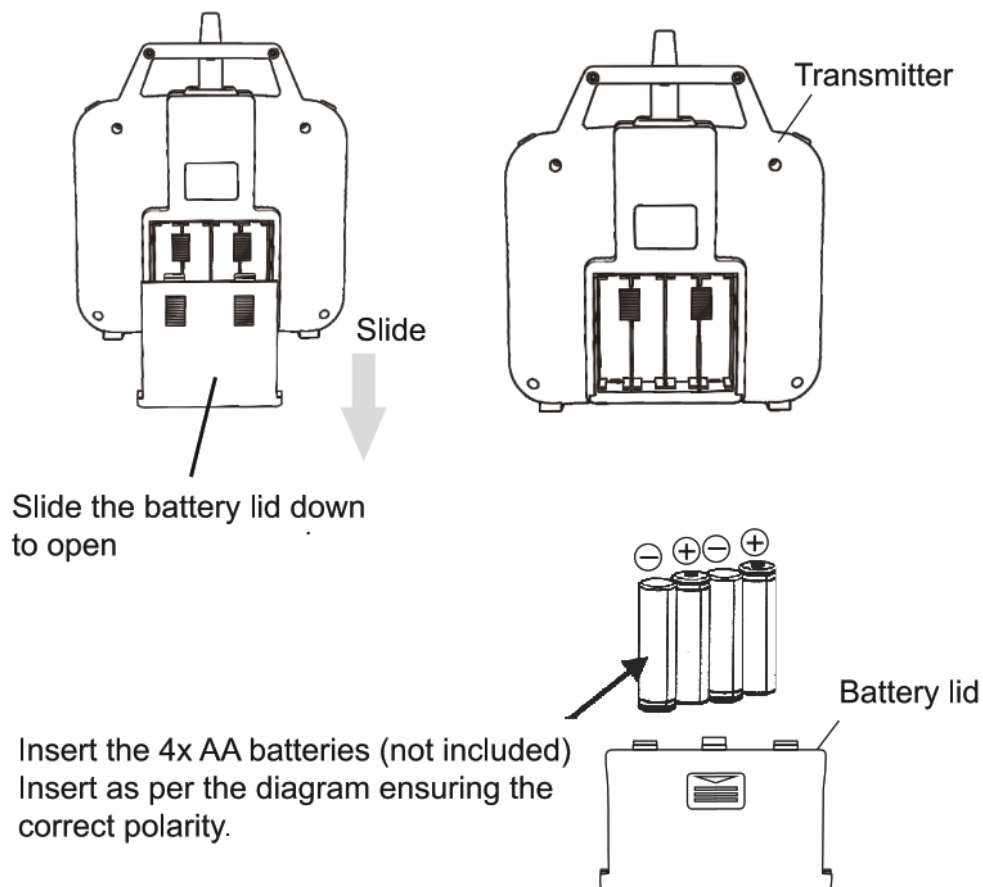


Box contents

1. Helicopter
2. Main blades & tail blade
3. Lipo battery
4. USB charger
5. Phillips Screwdriver & hex wrench
6. Upper connecting rod
7. Transmitter



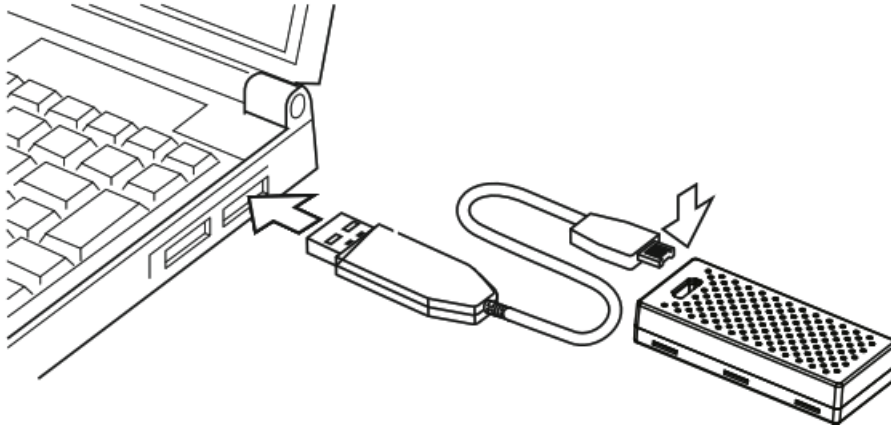
Transmitter battery installation



Charging the Ninja 250 Lipo battery



Only use the supplied Ninja 250 USB charger.



1. Connect the USB charger to your USB port.
2. Connect the battery to the USB charger.
3. The LED on the charger will illuminate when charging.
4. When the LED is extinguished the battery is charged.
5. The charge time for a completely depleted battery is around 60 minutes.

IMPORTANT NOTE

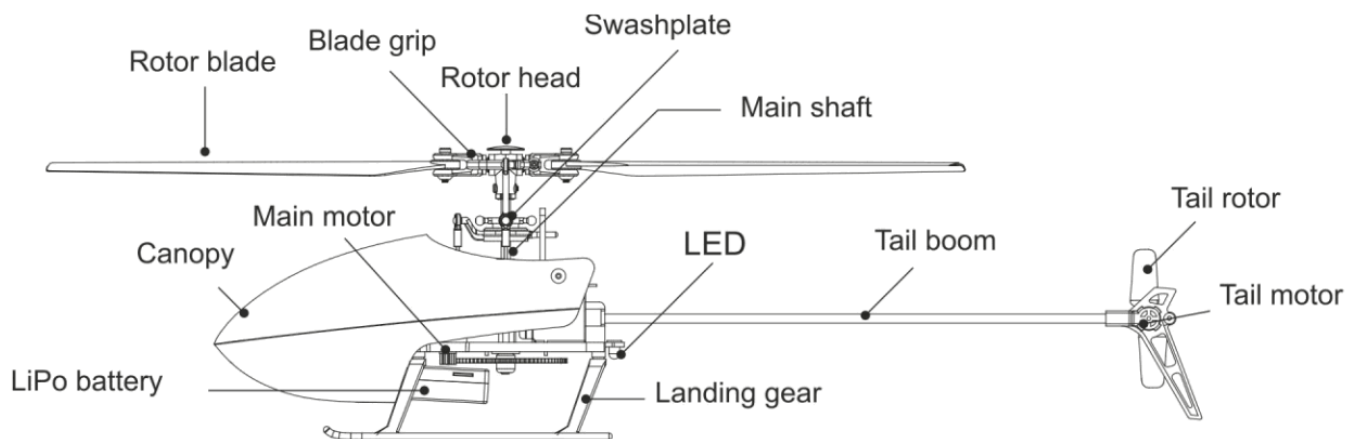
Charging

Although charging information should be included with your batteries and charger, it is repeated here for clarity and to ensure that you're aware of the most common things to note with regard to charging the supplied batteries.

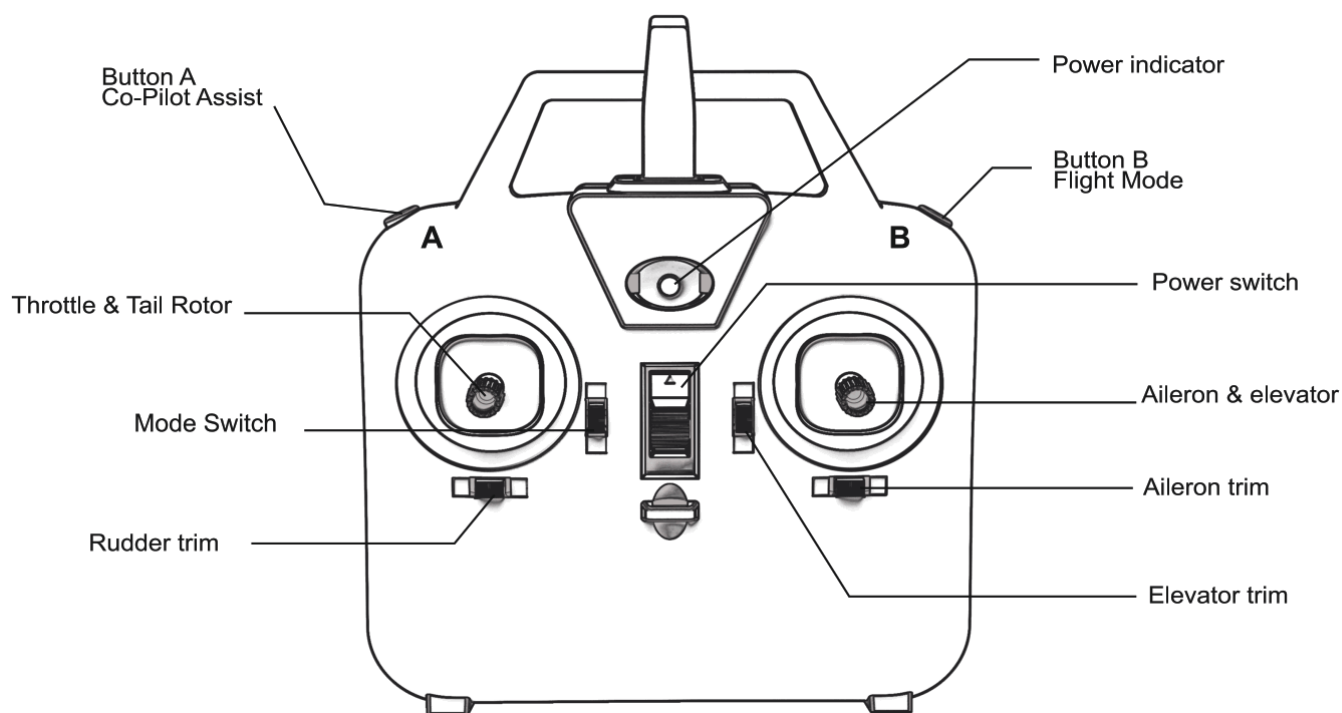
- Never leave the battery unattended while charging and never operate the charger without adult supervision.
- Never charge a warm battery. Always allow the battery to cool to room temperature before charging.
- Always use a fireproof charge bag when charging / discharging LiPo batteries.
- Never drop the charger or battery and do not charge a damaged battery.
- Inspect the battery and charger before use. Never use a battery or charger if a wire or connector has been damaged or if the battery has previously experienced a short circuit.
- Incorrect use of the battery, connections, or charging equipment can cause personal injury or property damage.
- Never allow batteries or chargers to come into contact with moisture at any time.
- Stop charging immediately if the battery or charger becomes hot or if the battery changes form during charging.

WARNING: WHEN USING LIPO BATTERIES, ONLY USE THE TWISTER CHARGER DESIGNED FOR USE WITH THE LIPO SUPPLIED. THE USE OF OTHER CHARGERS OR CONNECTORS CAN CAUSE CATASTROPHIC FAILURES AND CAN PERMANENTLY DAMAGE YOUR BATTERY AND / OR CONNECTED EQUIPMENT. THIS PRODUCT IS NOT A TOY AND SHOULD NOT BE CHARGED, OPERATED, OR MAINTAINED WITHOUT THE SUPERVISION OF AN ADULT.

Get to know your Ninja 250



Transmitter switch identification

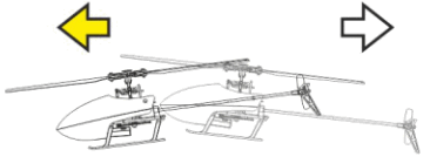
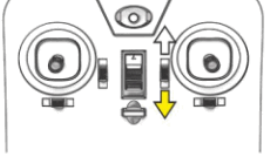
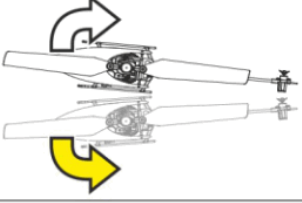
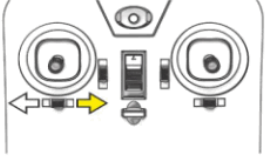
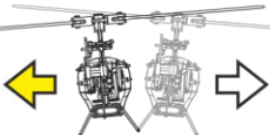
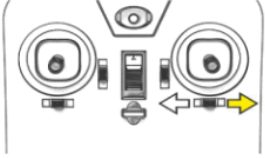


Transmitter mode change

When first switched ON the transmitter will always automatically select Mode 2. If you want to select Mode 1 you must follow the procedure noted below every time you power up the transmitter.

1. Connect the battery to the helicopter and place it on a level surface. The LED on the helicopter will blink slowly.
2. Blip the Mode switch down and hold it in the lower position.
3. Switch the transmitter ON with the Mode switch still held in position and wait for an audible tone and flashing LED on the transmitter. The helicopter LED will now flash at a higher rate. At this point, you can release your hold on the Mode switch.
4. Advance the right stick (throttle Mode 1) to 100%. A short audible tone will be emitted and the LED on the transmitter will start to flash faster. Now reduce the throttle to 0% which in turn will be met by a long audible tone, whereupon the LED on the transmitter will illuminate solid red.
5. With Mode 1 now selected the LED on the helicopter will illuminate solid red. You are now ready to fly in Mode 1.

Please note that if you're a Mode 1 flyer the mode sham procedure has to be performed every time the transmitter is switched ON. **Trim buttons (Mode 2 example)**

Helicopter slowly moves forward			Fine-tune according to the direction of the arrow
Helicopter slowly yaws anti clockwise			Fine-tune according to the direction of the arrow
Helicopter slowly moves Left			Fine-tune according to the direction of the arrow

Co-Pilot technology

The Ninja 250's two-tier Co-Pilot technology makes it a very clever piece of kit. The first tier of the Co-Pilot software is a flight aid that constantly assists you when the helicopter is airborne and remains active in both Novice and Advanced flight modes (see below). This includes 6-axis gyro stabilization to smooth the model's flight pattern through maneuvers and to dampen the effect of turbulence. It also includes altitude hold functionality that works to maintain a constant height through all maneuvers while the throttle remains untouched. The second tier of the Co-Pilot software (Co-Pilot Assist, activated using Button A) offers Auto Take-off, Auto Land, and Emergency Shutdown options. For a full explanation of this see 'Button A — Co-Pilot Assist' below.

Button A — Co-Pilot Assist

Button A operates the Co-Pilot function and has three different uses to aid you in your flying experience. With the helicopter and transmitter switched ON and ready for flight the Co-Pilot button works as follows:

1. Press the button momentarily for Auto Take-off. This will start the rotor blades of the helicopter and will automatically increase the RPM to the point where the helicopter will take off. When it reaches a height of around 1.5m it will stop climbing and remain in the hover. Note that you will still have complete control over the helicopter during its ascent, however, if you move the throttle stick it will instantly break out of Auto Take-off mode.
2. Making sure that the helicopter is within 10 feet of the ground, press Button A momentarily for Auto Landing. This has the reverse effect of Auto Take-off, i.e. as soon as the helicopter has landed the motor will shut down. During the descent, you will still have full control of the helicopter but if you touch the throttle you will instantly break out of the Auto Landing sequence.
3. Press and hold Button A for 3 seconds to activate the emergency shutdown function. If you lose control of the helicopter this lets you abandon the flight by shutting down the rotor completely, allowing the helicopter to fall to the ground. In most cases the durability of the Ninja will allow a damage-free crash landing, however, always check the helicopter for damage when this function has been used.

Button B — Flight Modes

Button B operates the Flight Mode function, of which there are two options: Novice and Advanced. Novice Mode offers full control of the helicopter but employs reduced control movements to soften the helicopter's response. Advanced Mode offers full control of the helicopter with full control movement, making the Ninja far more reactive to stick input.

1. Momentarily press the button to switch to Advanced Flight Mode. This is highlighted by two audible beeps.
2. Momentarily press the button again to switch from Advanced Flight Mode back to Novice Flight Mode. This is highlighted by a single audible beep.

Note: Your Ninja 250 will default to Novice Mode whenever the transmitter is switched ON.

Power switch

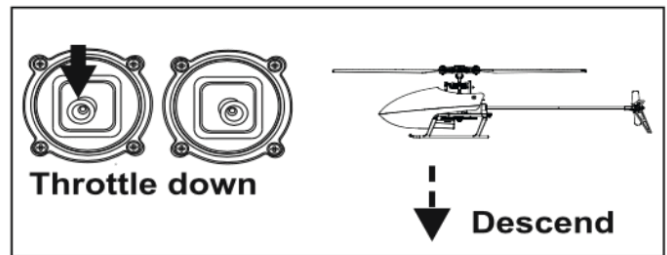
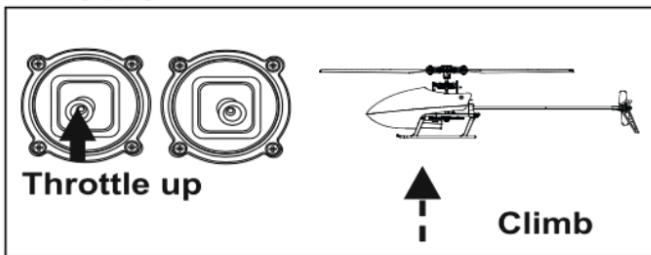
Before powering up the transmitter make sure you have inserted 4 AA batteries (not included). To switch it ON, move the Power Switch to the up (ON) position. Note: Always plug the battery into the helicopter before switching the transmitter ON. This allows the transmitter to find the helicopter's signal.

Power indicator

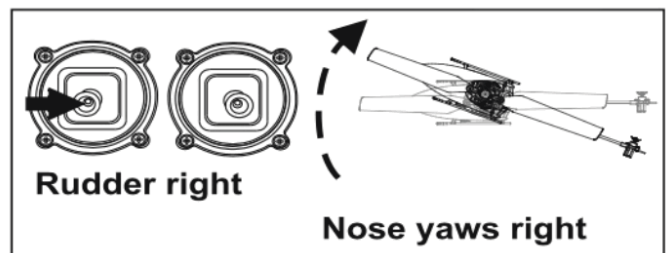
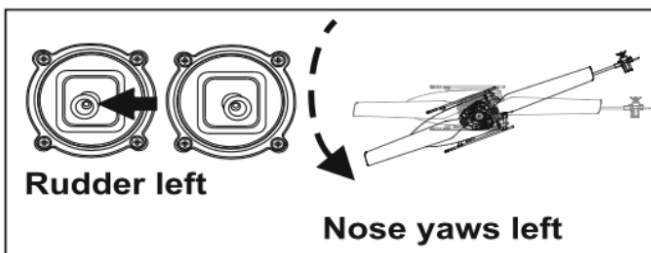
The LED power indicator keeps you informed of the battery power in the transmitter. If the batteries begin to get low the LED will start to flash warning you that the batteries need replacing. This is not to be confused with the power LED acting as a status indicator during some of the power-up procedures, as covered here in 'Transmitter mode change'.

Stick Controls (Mode 2 example)

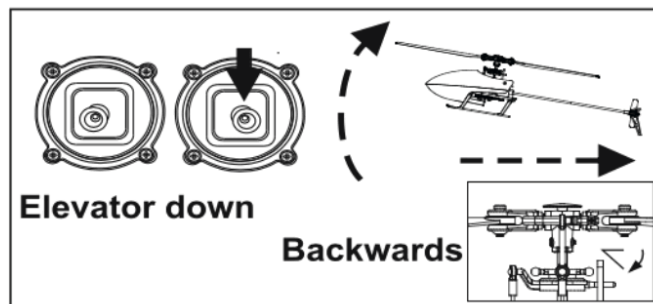
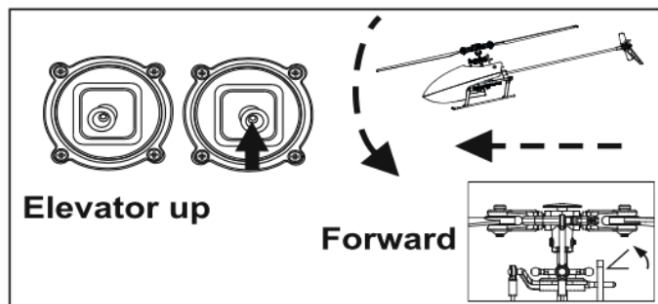
Throttle



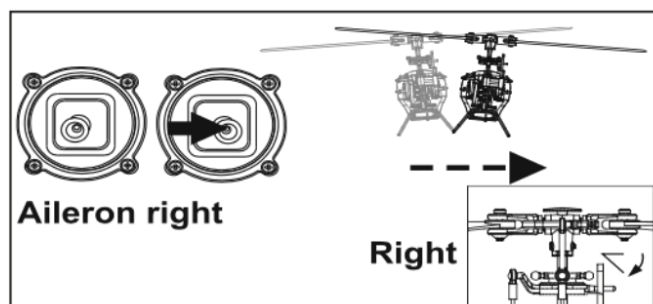
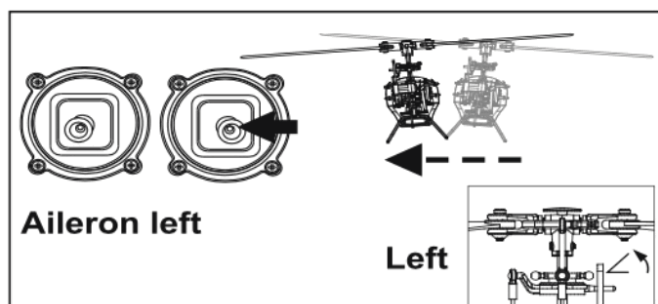
Rudder



Elevator



Aileron



Flight operation steps

Pre-flight checks

Before flight, it is your responsibility to ensure that you have inspected your Ninja 250 for any damage that might have occurred during previous flights and that it is safe to fly again. We recommend a safe 2m distance when flying.

Preparing for take-off

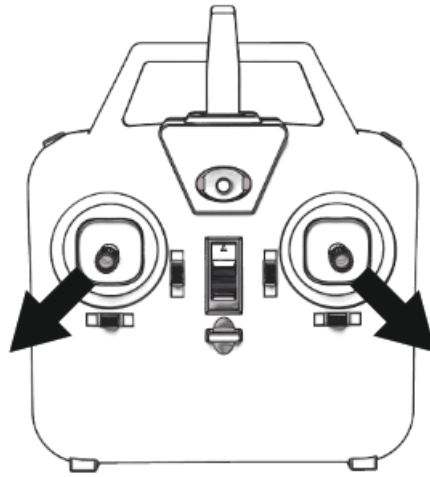
1. Connect the battery to the helicopter and place it on a level surface. The LED on the helicopter will blink slowly.
2. Switch ON the transmitter and wait for an audible tone. The LED on the transmitter will be flashing. Note that the helicopter's LED is now flashing at a higher speed. Advance the left stick (throttle) to 100%. A short audible tone will be emitted and the LED on the transmitter will start to blink faster. Now reduce the throttle to 0% which in turn will be met by a long audible tone and the LED on the transmitter will be a constant red. This procedure will arm the helicopter whose LED will also be a constant red. The helicopter is now ready for take-off.

Take-off

The helicopter has two options for take-off.

1. Press Button A (Co-Pilot) momentarily for Auto Take-off. This will start the rotor blades of the helicopter and will automatically increase the RPM to the point where the helicopter will take off. When it reaches a height of around 1.5m it will stop and remain in a hover. During the ascent you will still have full control over the helicopter but if you move the throttle stick it will break out of the Co-Pilot Auto Take-off mode.
2. The second option for taking off is without a Co-Pilot assist. Move both sticks to the bottom, outermost corners. This will start the helicopter motor and allow you to increase the RPM as needed for a fully controlled take-off. We advise this method only for intermediate and advanced pilots.

Manual startup stick command



Flying

Referring to the section entitled 'Stick controls', use all four flight controls to guide your Ninja 250 around your flying area. If you've not flown a model helicopter before this will take some practice. The helicopter's pre-set Novice Mode will help you through your flight, maintaining a constant height whilst using the 6-axis gyro to keep things steady. For the first flight, it's good to stay in Novice Mode but as your skill improves you can use the Flight Mode button (described in 'Button B – Flight Modes') to switch to Advanced Mode which offers more control movement.

Flight trimming

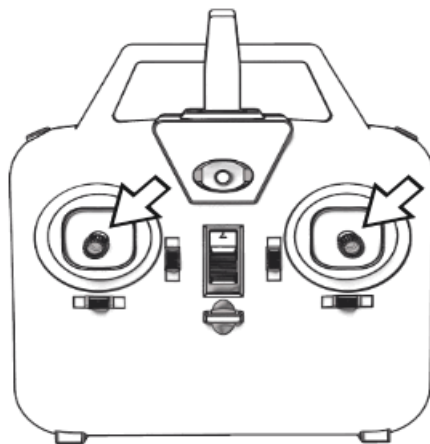
If you find the helicopter drifts in any direction, use the trim buttons described in 'Trim buttons' to tune the hover. For best results do this in calm conditions or, better still, indoors.

Gyro calibration

If you feel that trimming the helicopter has not suitably honed any in-flight drift you can land and resolve this by calibrating the gyros. Do note, however, that even in flat-calm conditions all helicopters will drift slightly in the hover due to tiny air movements. This is normal.

1. Set the helicopter on a level surface and power it up ready for flight.
2. Move both sticks to the bottom left corners and hold them in position.
3. You will hear an audible tone from the transmitter and the helicopter will confirm the calibration with the LED changing from constant red to flashing red, then back to constant red. The calibration is now complete.

Gyro calibration stick command



Low battery warning

The Ninja 250 is equipped with a low battery warning. The LED at the rear of the helicopter will start to flash when the battery is nearing depletion. This allows about 30 seconds to land before the Ninja engages its low battery landing mode to protect the battery. If the helicopter enters the low battery landing mode it will slowly descend until it reaches the ground, whereupon it will shut down.

Landing

The helicopter has two options for landing:

1. Using Button A (Co-Pilot Assist) you must make sure the helicopter is within 10 feet of the ground. Press Button A momentarily for Auto Landing. This works in reverse of the Auto Take-off function and, accordingly, as soon as the helicopter lands it will shut down the motor. During the descent, you will still have full control of the model but if you touch the throttle you will break out of the auto-landing sequence.
2. Using the throttle you can manually land the helicopter by gently reducing height until it's on the ground. Once on the ground hold the throttle at zero until the motor shuts down.

Post-flight checks

It's good practice to check your helicopter for any damage that might have occurred during the flight. If your Ninja has struck any surfaces or objects pay particular attention to the rotor blades (main and tail) and replace them if any damage is spotted. The performance and safety of the helicopter rely, amongst other things, on perfectly balanced damage-free rotor blades.

Spare parts

If the worst happens, don't worry, a full range of Ninja 250 spare parts is available from your local J. Perkins stockist.

Spare parts list

TWST100101A	Rotor head set Inc hub/blade grips (4 pcs)
TWST100102A	Spindle set inc spindle / dampeners / spacers (10 pcs)
TWST100105	Canopy grommets (4 pcs)
TWST100107	Swash and servo link set
TWST100108	Swashplate
TWST100109	Main shaft with screw and collet
TWST100110A	Frameset / anti-rotation bracket / skid set
TWST100111	Main motor with pinion
TWST100112	Servo with arm
TWST100113	Main shaft bearings (2 pcs)
TWST100115	Main gear set (2 pcs)
TWST100117	LiPo 1S 300mAh battery
TWST100119	Tail boom set
TWST100120	Tail blade (2 pcs)
TWST100121	Tail motor
TWST100123	USB charger
TWST100124	Main blade set (red)
TWST100124B	Main blade set (blue)
TWST100125	Main flight board
TWST100126B	Canopy, blue
TWST100126R	Canopy, red
TWST100127	Screw set
TWST100131	2.4GHz transmitter with Co-Pilot Assist & Mode switch

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Model Engines PTY Ltd

Unit 1/32 Bluett Drive

Smeaton Grange

NSW 2567

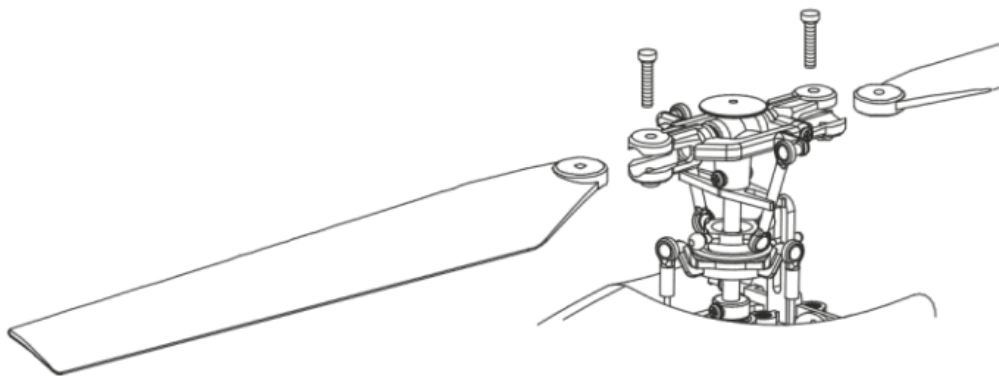
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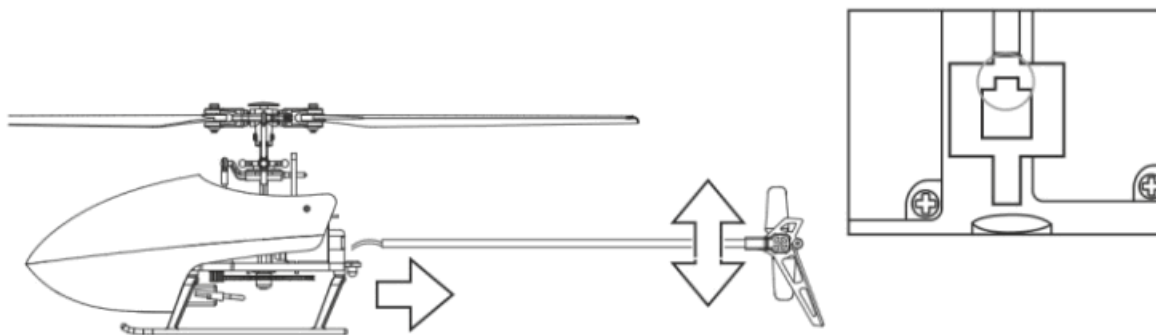


Parts replacement notes

Remove the rotor blades with a hex wrench provided, being careful not to overtighten when installing the new blades.



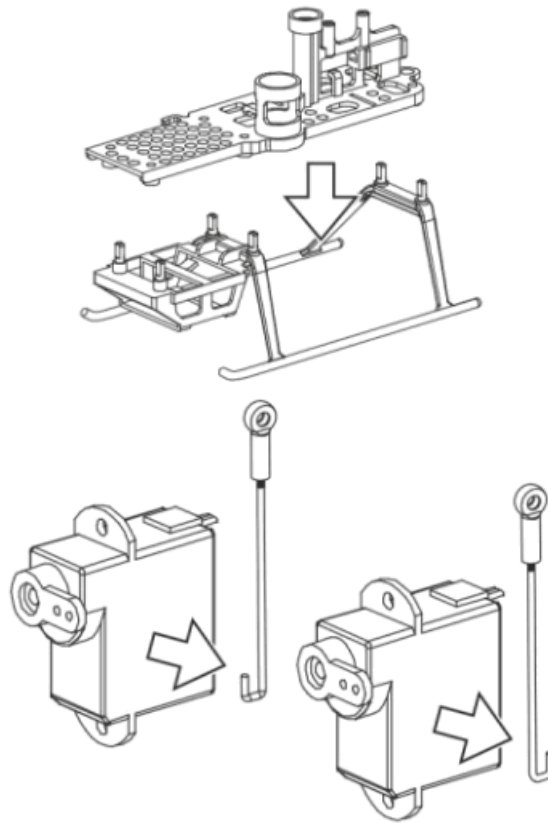
When replacing the tail boom, pull the plug backward forcefully. Pay attention to the direction when installing, and align the power cord with the hole.



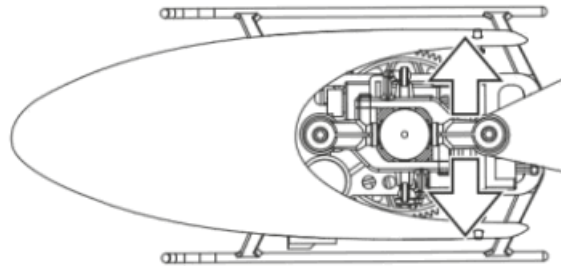
Disconnect the plug, then twist the motor left and right whilst pulling it out.



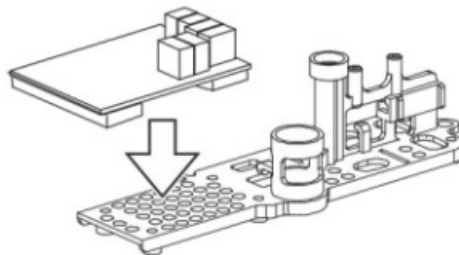
Pull the landing gear downwards to remove and press into the corresponding holes when installing.



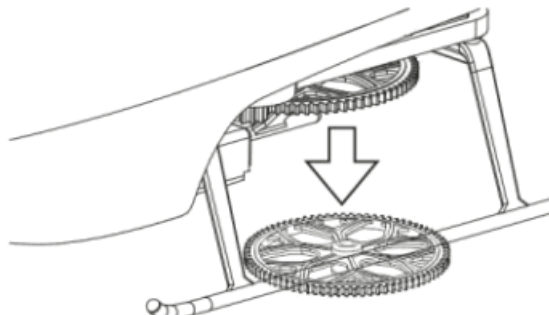
Pay attention to the connecting rod direction when disassembling and replacing the servo.



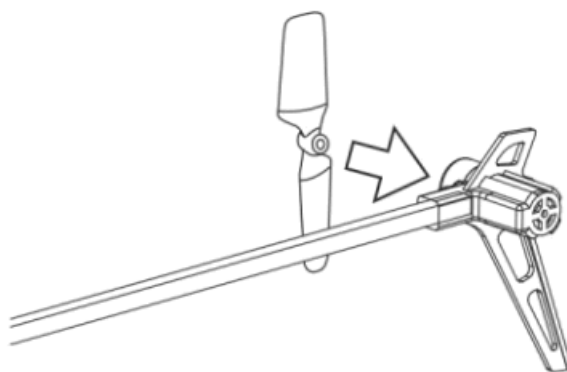
When replacing the receiver, renew the double-sided tape, align the new receiver with the edge of the rack and stick it tightly without skewing. Make sure to connect the servo and the motor to the correct sockets.



Pull the main gear straight down to remove it. Make sure the new main gear is 'right side up' before installing. The pinion should align with the main gear.



When removing and replacing the tail rotor, please pay particular attention to the direction, making sure that the new rotor goes on exactly the same way round as the old rotor. Align the hole with the motor shaft and press it home.



Fault Diagnosis

	Problem	Possible Cause	Solution
1	When connecting the battery to the Ninja 250 the LED remains Off.	Battery is not charged. Battery not making a good connection.	Check battery is charged. Remove canopy and make sure battery connections are making good contact.
2	When the battery is connected to the Ninja 250 and the transmitter is switched On, the Ninja 250 LED remains flashing.	The Ninja 250 needs to be correctly powered up.	Please follow the section entitled 'Flight operation steps'.
3	When trying to take off, the LED on the Ninja 250 remains to flash.	Ninja 250 battery needs charging.	Charge the battery following the charging instruction.
4	When trying to take-off, the motor runs but the main blades do not turn.	The main shaft may have slipped down. The motor pinion may have sheared off.	Align the main shaft again with the motor pinion. Replace the motor and pinion.
5	The Ninja 250 spins to the left after take-off.	Damaged tail rotor Damaged main blades Gyro calibration needed	Change tail rotor Change main blades Calibrate Gyro as per the calibration process
6	The Ninja 250 spins to the left after take off.	Tail blade damaged. Fluff on the motor shaft. Rudder trims out.	Replace tail blade. Remove fluff from the motor shaft. Adjust trims as per the section entitled 'Trim buttons'
7	The Ninja 250 does not turn as it should	Damaged servos. Damaged swashplate or links.	Replace damaged servo Damage swashplate or links
8	Ninja 250 only flies for 5 —10 minutes.	Check battery Check charger Check the main rotor is not stiff to turn	Replace battery Replace the charger Replace damaged items.

CONFORMITY

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CE CONFORMITY



J Perkins (Distribution) confirms this product is in compliance with the relevant harmonized UK and European directives relating to its safe operation.


To see a copy of the relevant Declaration of Conformity visit www.jperkins.com or modelengines.com

WEEE



This appliance is labeled in accordance with European Directive, concerning Waste Electrical and Electronic Equipment (WEEE). The WEEE Directive came into force to reduce the disposal of domestic waste and promote recycling. Any electrical item that carries the crossed-out wheeled bin logo must not be disposed of in domestic waste but should be taken to a designated collection facility. J Perkins (Distribution) is a member of an approved compliance scheme to encourage consumers to recycle unwanted items. Your local authority will be able to provide details of your nearest GE-approved waste disposal site.

Documents / Resources

	<p>NINJA 250 Single-Rotor Radio Control Helicopter with SwitchableCo-Pilot [pdf] User Guide</p> <p>250 Single-Rotor Radio Control Helicopter with SwitchableCo-Pilot</p>
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