

14+



Jump Jet

INSTRUCTION MANUAL



DESIGNED BY
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TST. EAST, HONG KONG

CAUTION: ELECTRICALLY OPERATED PRODUCT

NOT RECOMMENDED FOR CHILDREN UNDER 14 YEARS OF AGE.
AS WITH ALL ELECTRIC PRODUCTS, PRECAUTIONS SHOULD BE OBSERVED DURING
HANDLING AND USE TO PREVENT ELECTRIC SHOCK.
TRANSFORMER IS NOT A TOY.
THIS TOY CONTAINS FAST MOVING PARTS.

AC CHARGER USED BY ADULT ONLY
INPUT: AC100V - 240V 50/60Hz
OUTPUT: DC14V/300mA

PRODUCT MUST BE PERIODICALLY EXAMINED FOR CONDITIONS THAT MAY RESULT
IN THE RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS, IN AN EVENT OF
SUCH CONDITIONS, THE PRODUCT SHOULD NOT BE USED UNTIL PROPERLY REPAIRED.



Congratulations on purchasing the Jump Jet. The Jump Jet is designed to be incredibly easy to fly with maximum stability. Before experiencing the flying excitement, please read this manual to learn how to operate it properly and safely.

1. Product Safety

A. General

- This Jump Jet is only for use by children over 14 years old.
- Do not fly the Jump Jet without any adult supervision.
- Always keep face, eyes, fingers, or other body parts, clear of the propellers when flying.
- Always fly with at least 3 meters of open space.
- Always fly away from people, pets and any obstacles.
- This Jump Jet is only for indoors use.
- Do not fly the Jump Jet in dark areas.
- Do not attempt to lift objects with the Jump Jet.
- Do not expose the Jump Jet to rain, moisture or dust.
- Always switch off both the aircraft and the handset when not in use.

B. Important Information

- This instruction manual contains important information and must be retained.
- Adult assembly maybe required.
- Only use the AC adaptor & charger provided in the package.
- The AC adaptor & charger is for Indoors use only. Make sure it is dry before plugging in.
- The AC adaptor & charger must be examined regularly by adult.
- Do not use the AC adaptor & charger if any damage occurs to the power cord or other parts.
- Do not fly the Jump Jet if damage occurs to the propellers, guard rings or other parts.

C. Battery Safety

(Lithium Polymer batteries are used, please read the safety instructions carefully)

- Charged only with the AC adaptor & charger provided in the package.
- Do not leave the Jump Jet unattended during charging.
- Do not attempt to disassemble the rechargeable batteries.
- Do not allow the batteries to get wet or dispose of in fire.
- Do not short circuit.

D. Important Information about Infrared Remote Control.

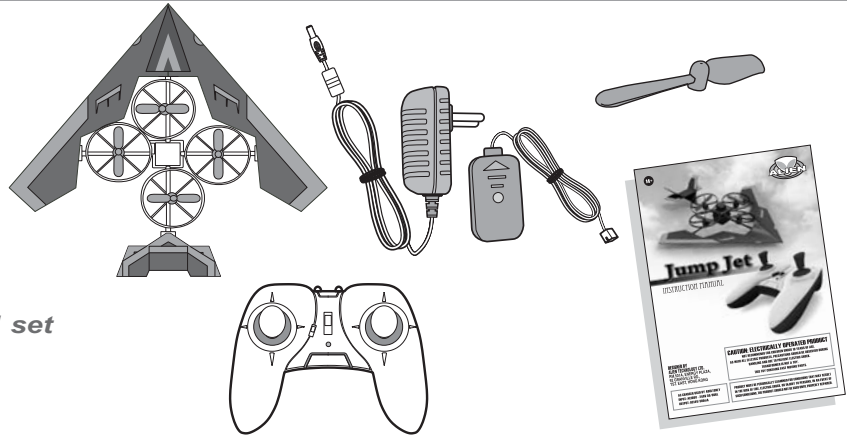
- The Jump Jet uses Infrared remote control. Performance can be affected by interference like,
 - TV Remote Control
 - Infrared RC Car
 - Electric Lighting, especially fluorescent lights, and direct sunlight

Interference can cause sudden unexpected aircraft movements, and a reduction in remote control range. When the aircraft goes out of control range, it will switch off automatically.

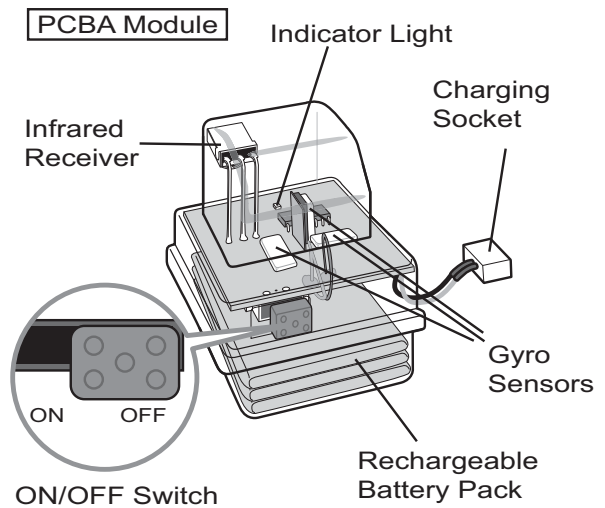
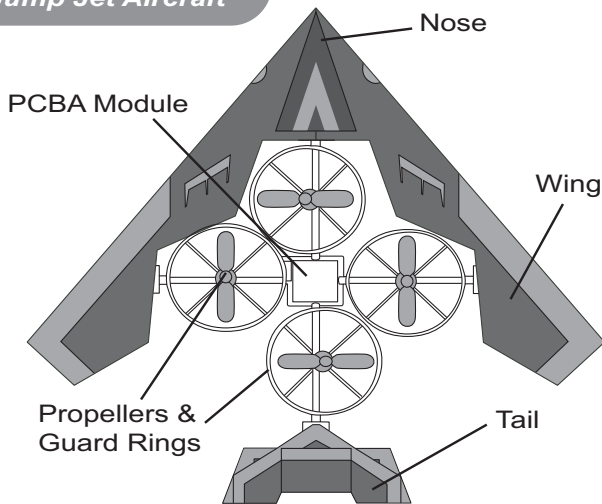
- Infrared Remote Control works by direct line of sight transmission between the aircraft and the handset. In a domestic environment, performance is greatly enhanced by reflections from the walls, floor and ceiling. In a larger space, these reflections will be less effective and reception will be more easily affected by interruptions to the Infrared beams. Try to keep the handset pointing directly at the aircraft, and remember that control range maybe reduced.

2. Packing Checklist & Product Descriptions

- **Jump Jet Aircraft x 1 set**
- **Jump Jet Handset x 1 set**
- **AC Adaptor & Charger x 1 set**
- **Spare Propeller x 1 pc**
- **Instruction Manual x 1**

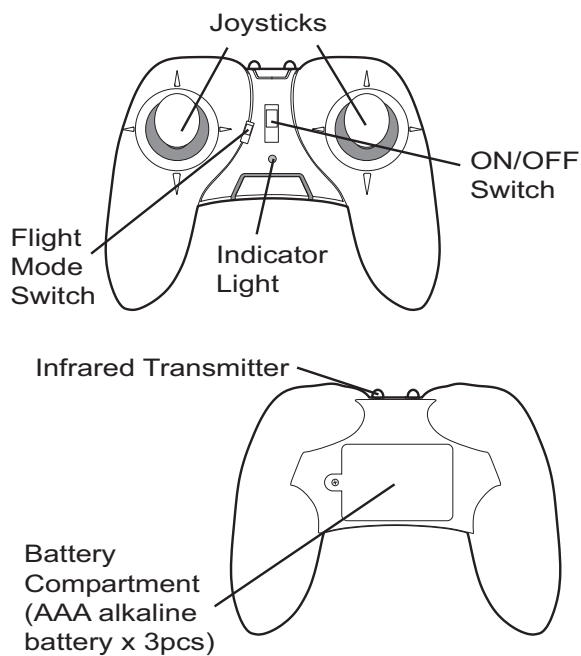


Jump Jet Aircraft

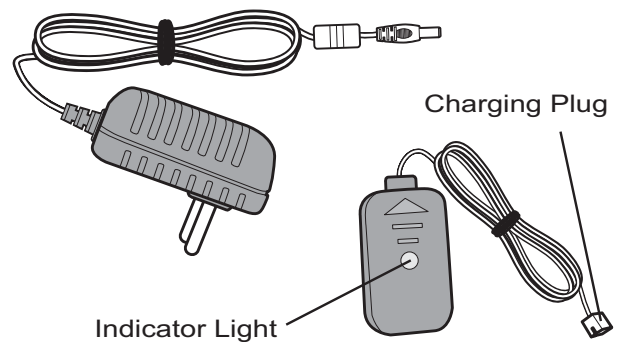


**Replacement batteries are sold separately.*

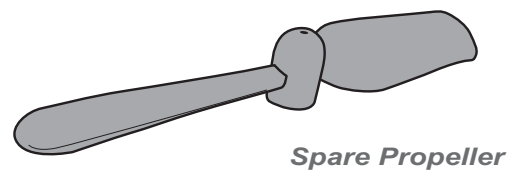
Jump Jet Handset



AC Adaptor & Charger



Spares



3. Principles of Operation

The Jump Jet uses a unique combination of advanced gyro sensors, intelligent computer control and aerodynamic stabilization to create an aircraft which is both highly maneuverable and easy to fly. The aircraft can take off and land vertically, hover, and fly in any direction. To achieve this, the handset has four controls operated by moving the two joysticks either up and down or side to side (See Fig. 1 for Mode 1 handset and Fig. 2 for Mode 2 handset).

Noted: It is very important to know the configuration of the handset you using (Mode 1 or Mode 2).

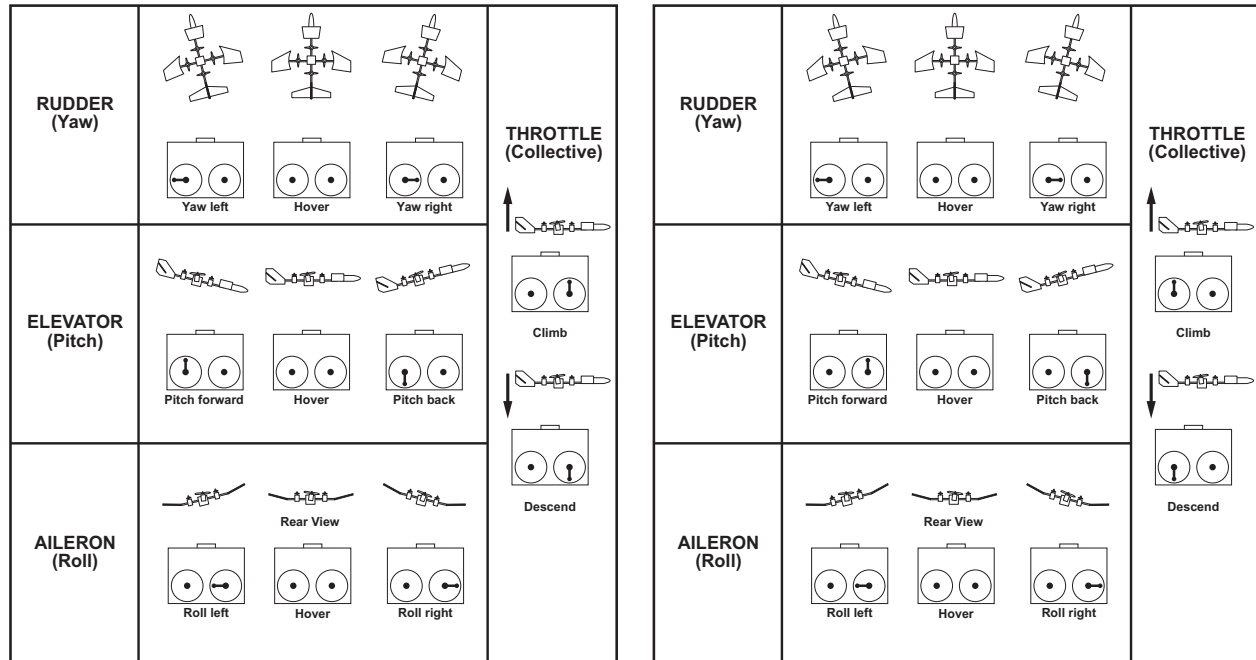


Fig. 1 – Jump Jet Handset Controls (Mode 1 Configuration) Fig. 2 – Jump Jet Handset Controls (Mode 2 Configuration)

Moving one of the joysticks causes the aircraft’s propellers to change speed in the correct combinations to move the aircraft in the appropriate direction. For example, raising the Collective control (throttle), causes all four propellers to speed up simultaneously so as to lift the aircraft vertically upward. Pushing the Elevator stick forwards causes the front propeller to slow down, and the rear one to speed up. This makes the aircraft tilt forwards as if to dive.

All of the controls except for the Collective, cause the aircraft to rotate about a particular axis, altering its orientation in the air. The Jump Jet has three such rotational, or attitude controls, corresponding to the three primary axes of motion, called pitch (tilting the nose up and down), roll (raising and lowering the wingtips) and yaw (horizontal steering, like a car). In order to make the aircraft fly in a particular direction, the pilot must tilt the aircraft correspondingly; for example to fly forwards, the pilot needs to pitch the aircraft forwards (nose down).

The Collective control adjusts the rate of climb or descent. The pilot has to use this control to get the aircraft to the desired height. Frequent adjustments are needed because the other controls tend to alter overall lift slightly, and the Collective control has to be gradually increased to maintain flight as the battery runs down. The joysticks for the three attitude controls are all self-centring, in other words they have springs inside which cause the joysticks to return to their neutral positions. It is very important to understand that the aircraft will not immediately return to the horizontal state and stop moving when the joysticks are centred. The neutral positions simply mean leave the aircraft attitude the way it is now. If a rapid stop is needed, the pilot must actively apply control in the opposite direction. Fortunately however, the Jump Jet is designed to right itself fairly quickly, so that its natural tendency is to hover, drifting about only quite slowly.

In order to help stabilise the aircraft, the propellers receive speed adjustments from the three on-board motion sensors (gyros). Each gyro sensor detects movement in one of the axes of pitch, roll or yaw. When a movement is detected, the gyro drives the propellers so as to try to counteract the motion as it occurs. This makes the aircraft much easier to fly than it would be otherwise. The gyros are very sensitive, and they need to self-calibrate before flight by setting their zero movement references whilst the aircraft is stationary on the ground. This happens during the first second after switching on the handset, and it is important not to move the aircraft during this time.

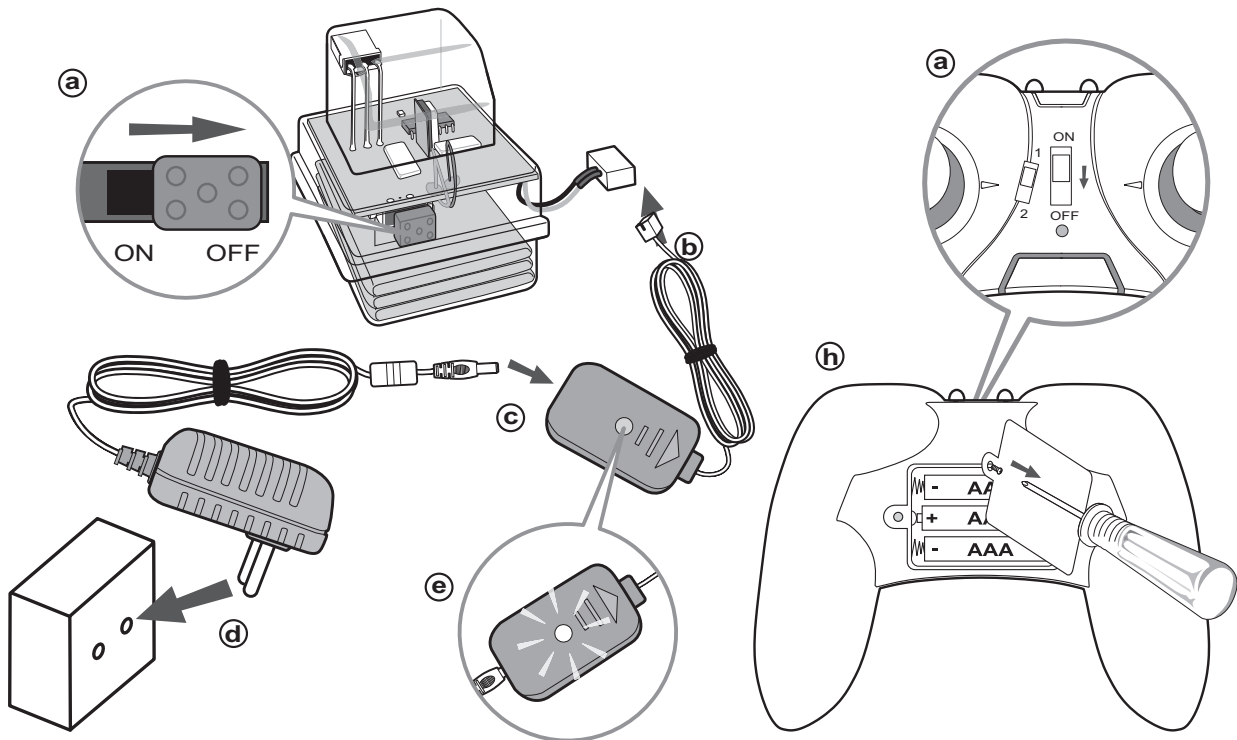
4. Preparing for the Flight

A. Unpack and Assembly

- With the help of the checklist, carefully remove all the parts from the packing.
- The Jump Jet is pre-assembled and tested before it is packed. No assembly is required.
- Carefully check the parts on the aircraft are intact and nothing is damaged during transit.
- Be familiar with aircraft orientation. The ON/OFF switch is facing the nose of the aircraft.

B. Charging

- Make sure both the aircraft and the handset are switched off. On the aircraft, slide the switch to the left to power off.
- Carefully connect the Charger to the charging socket on the aircraft.
- Connect the AC Adaptor to the Charger.
- Plug the AC Adaptor into an AC power outlet. Charging will start immediately.
- The indicator light on the Charger will illuminate while charging is in progress. The indicator light will turn off once it is completed. The charging usually takes 30 minutes.
- For best result, wait 5 more minutes before unplugging the AC adaptor & charger. This extra 5 minutes will help “top-off” the batteries. The Charger is designed that will not over-charge the batteries. Having said that, do not leave the AC adaptor & charger connected for extended period as this will gradually discharge the batteries.
- Carefully unplug the AC Adaptor from the AC power outlet and then disconnect the Charger from the aircraft. The Jump Jet is now charged and ready to fly.
- The handset requires 3 x AAA alkaline battery. Unscrew the battery cover to put in the batteries. Make sure the battery door is tightened up after installing the batteries.



Note:

- Lithium batteries must not be stored for long periods in the fully discharged state, otherwise they will be permanently damaged. If you will not be using the aircraft for more than a few days, recharge the battery before packing away.
- Do not leave the Jump Jet unattended when charging.
- Always make sure the battery pack and the charger are not overheated.
- The use of charger should be supervised by an adult and examined regularly.
- Use only fresh batteries of the required size and recommended type.
- Do not mix old and new batteries and batteries of different types.
- Do not use rechargeable battery. Use only alkaline battery.
- Please respect the correct polarity, (+) and (-).

5. Flight

The Jump Jet takes off vertically, like a helicopter. Once airborne it can hover in one place, and the key to flying it successfully is in mastering this simple mode of flight. Once a pilot can hover the aircraft, other manoeuvres such as forward flight and turns come quite easily. The Jump Jet will hover in one place if:

- The Collective control is set to the right speed, so that upward thrust from the propellers matches the aircraft's weight. This allows the aircraft to maintain constant height.
- The aircraft is exactly horizontal, so that the propellers' thrust is vertical. This allows the aircraft to remain stationary, with no horizontal movement.

If the aircraft tilts in any direction, then it will also start to move horizontally in that direction, because a small portion of the propellers' thrust will be pushing it that way. A tilt can arise because of a disturbance such as a draft, because the aircraft is not perfectly balanced, or because of a joystick control input. Having said that, the Jump Jet is designed so that tilts are quickly corrected automatically once the aircraft starts to move horizontally, so its natural tendency is to remain fairly still, only drifting about quite slowly.

Before flying the Jump Jet, please read "Principle of Operation" more carefully, making sure you know controller configuration you are using (Mode 1 or Mode 2) and be familiar with the configuration. At any time when you lose control of the aircraft, reduce the throttle and allow it to land.

To maximise infrared transmission reliability, always point the controller towards the Jump Jet when flying. Do not point the controller downwards, especially if there are furnishings etc. between you and the aircraft.

A. Taking Off

- a. Check that the handset is switched OFF.
- b. Switch on the aircraft by sliding the switch to the right (looking from the top). Keep your fingers clear of the propellers. The motors should not start, if they do, switch off the aircraft. Make sure the handset is off and no other Infrared source around before switching it on again.
- c. Place the aircraft on the floor. You need a room with at least 3 x 3m of open space; place it in the middle of the open area. Choose a room free from drafts (close doors and windows), and avoid direct sunlight and strong lighting, as these can interfere with the Infrared control.
- d. Whilst standing about a metre behind the aircraft, switch on the handset. The aircraft's gyro sensors will then self-calibrate, and it is **very important** not to move the Jump Jet during this period. Once calibration is complete, the indicator light on the PCBA module will illuminate. **ALWAYS SWITCH ON THE AIRCRAFT BEFORE THE HANDSET.**
- e. When you are ready, gradually raise the collective control on the handset. The propellers should all start to run, but please note that the motors will not start unless the collective stick has first been lowered to minimum; if it is partially raised then you must lower it first.
- f. The propellers should all start at roughly the same moment. If they don't, you should switch off the handset and follow the step to re-calibrate the gyros.
- g. As the propellers approach take-off speed, the Jump Jet will start to appear "light" on the ground. At this stage, give a decisive burst of power to lift the aircraft into the air, rather than letting it slide around on the floor.
- h. Once in the air, experiment with the collective control to find the setting where the aircraft hovers. Do not fly too high at first! Remember that the controls work in relation to the aircraft itself, so if it turns to face you, the controls will seem reversed.
- i. New pilots should set the handset Flight Mode switch to 1. This will make the direction controls easier to use. Once experience has been gained, set the switch to 2 for maximum manoeuvrability.

B. Flying About

Once the Jump Jet is hovering stably in the air, it is very easy to manoeuvre its flight. Make sure you fully understand the handset controls in Throttle, Rudder, Elevator, and Aileron. Please refer to Fig. 1 (Mode 1 configuration) or Fig. 2 (Mode 2 configuration) for details.

a. Flying higher and descend (Throttle)

- To climb, push the throttle control forward.
- To descend, pull the throttle control backward.

b. Moving forward and backward (Elevator)

- To move forward, push the pitch control forward. The aircraft nose will tip down.
- To move back, push the pitch control backward. The aircraft tail will tilt down.
- When flying forward or backward, it may be necessary to increase the throttle slightly to maintain the height.
- To increase forward flight speed in larger rooms, slide off the horizontal fin from the aircraft's tail, leaving the "V" tail in place. The fin can be replaced at any time.

c. Moving left and right (Aileron)

- To move left, bring the roll control left. The left wing tip will tilt down.
- To move right, bring the roll control right. The right wing tip will tilt down.

d. Making turns (Rudder)

- To make a left turn, slide the yaw control left. The aircraft nose will steer left.
- To make a right turn, slide the yaw control right. The aircraft nose will steer right.
- When making turns, the aircraft will also tend to bank to one side. It will right itself when the turn is complete.

Note:

- ***Always keep an eye on the aircraft so that you can actively control the flight.***
- ***The controls work in relation to the aircraft body. Therefore if the aircraft turns to face you, the controls will appear reversed. Try to keep the aircraft facing away from you to start with.***

C. Landing

- To land the Jump Jet, reduce the throttle **slightly**, so that the aircraft sinks slowly. As it reaches the floor, cut the throttle completely to prevent bouncing.
- When the Jump Jet's battery runs down, it will no longer be possible to climb even with maximum throttle, and the aircraft will shortly start to sink. At this stage it is safest to land, while there is still enough power to control the descent speed.
- Remember to switch off the aircraft and the handset after use. If the Jump Jet remains switched on after the batteries have run down, the power will cut off automatically to prevent damaging the batteries. Be sure to land before this happens!

D. Flying Tips

- Do not fly the Jump Jet too close to walls or ceilings which tends to suck towards flat surface.
- When taking off, do not move the throttle stick too slow. Try to get it in the air smoothly and fairly quickly. Yet, this does not mean that you should jam the throttle stick to full power.
- To avoid unwanted oscillation, avoid sudden control stick movements. Always make your control inputs smooth
- During your first few flights, try to keep the aircraft close to the ground so that you can safely cut the throttle and land it quickly. Avoid damaging the aircraft.

If the Jump Jet goes out of trim so that it moves or turns by itself, simply reset it by landing, and switching the controller off and on again. This will re-calibrate all controls.

6. Aircraft Trimming

When the Jump Jet hovers, it should ideally remain stationary in the air without any adjustments from the pilot (assuming no drafts). However, small aerodynamic imbalances can cause the aircraft to drift in one particular direction in the air. This trim offset can be corrected.

If the Jump Jet drifts in one particular direction, then this can be corrected by adding a small amount of weight to the opposite side of the aircraft. Adhesive putty is ideal for this. The weight should be positioned as close as possible to the aircraft's extremity, to maximise the balancing effect so that the smallest possible amount of weight can be used. **For safety purpose, make sure the aircraft and the handset are switched off when applying the weight.**

For example, if the Jump Jet always seems to drift to the right, then try adding a small weight to the left hand wingtip. It will rarely be necessary to use more than about half a gram – try a ball of adhesive putty 4 – 5mm in diameter, and then experiment as necessary.

7. Troubleshooting Guide

Aircraft will not run	<ul style="list-style-type: none">• Replace batteries in controller• Charge aircraft• Switch on aircraft, then controller
Some motors do not start	<ul style="list-style-type: none">• Aircraft out of trim. Switch off controller and switch on again, taking care not to move Jump Jet until aircraft indicator light illuminates
Aircraft moves or turns by itself	<ul style="list-style-type: none">• Out of trim. See above
Aircraft falls to the floor	<ul style="list-style-type: none">• Infrared signal lost: Point controller towards Aircraft when flying• Replace controller batteries• Move closer to aircraft• Fly somewhere with less interference, especially fluorescent lighting and direct sunlight
Aircraft makes unexpected moves	<ul style="list-style-type: none">• Outside interference: See above
Replacing broken propeller	<ul style="list-style-type: none">• Switch off aircraft. Grasp motor housing firmly in one hand, and pull off broken propeller. Push new one on, leaving a small gap underneath to allow free rotation.



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