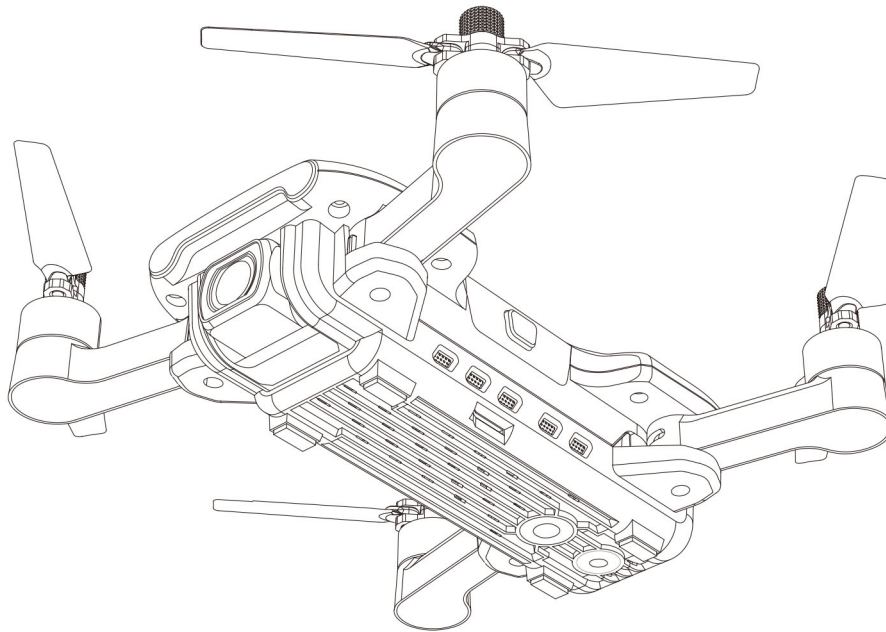


Bugs 7

User Manual



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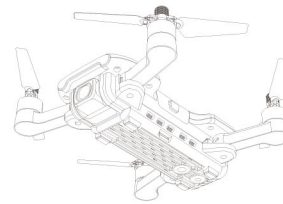
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Product Profile

This section mainly introduces functions and installation guidelines of B7 and lists the components of the aircraft and remote controller.



Introduction

- The Bugs 7 aircraft is equipped with optical flow and GPS system. It can hover and fly stably indoor and outdoor. It has automatic return home function and other easy-to-use intelligent flight functions, such as orbit flight, follow-me and waypoint flight. Bugs 7 can shoot 4K HD videos.
- The transmitter is equipped with a complete set of function keys, it can realize various operations and settings of the aircraft and camera. Not only can display real-time HD pictures on the mobile device through the APP, but also display information such as flight parameters on the device screen. The folding transmitter improves users' operation experience. The pull-out stand is easy to carry and for storage. What's more, the gimbal can adjust manually the camera shooting angle before flying.
- The maximum flight speed of Bugs 7 is 32km/h.

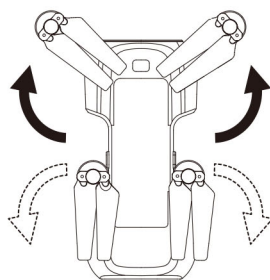
Prepare Your B7

Unfold the aircraft

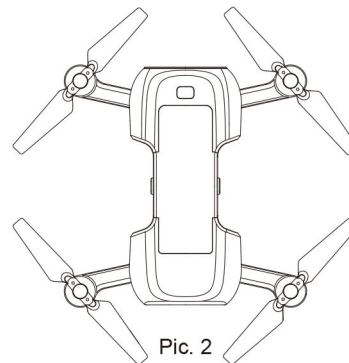
The Aircraft is folded inside the package. Follow the steps as below to unfold the aircraft.

Step 1: Unfold the front arms (Pic. 1);

Step 2: Repeat again to unfold rear arms (Pic. 2).



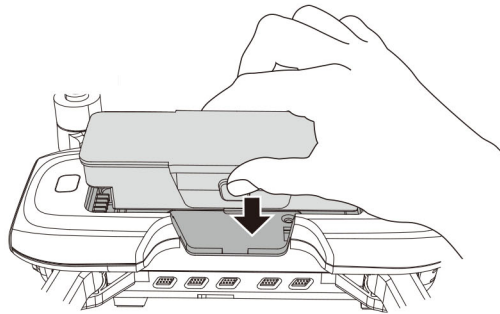
Pic. 1



Pic. 2

Battery installation

Insert the fully charged battery into the aircraft battery box (see as the picture), ensure the battery install correctly.



Attention: The battery should be installed firmly, failure to do so may affect the flight safety of your aircraft. The aircraft may crash due to power-cut during the flight.

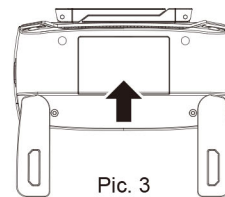
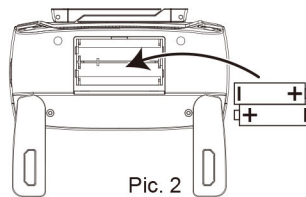
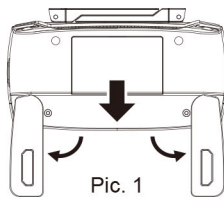
Prepare the Remote Controller

Install the battery of remote controller

Step 1: Unfold the hand sticks and open the battery door (Pic. 1);

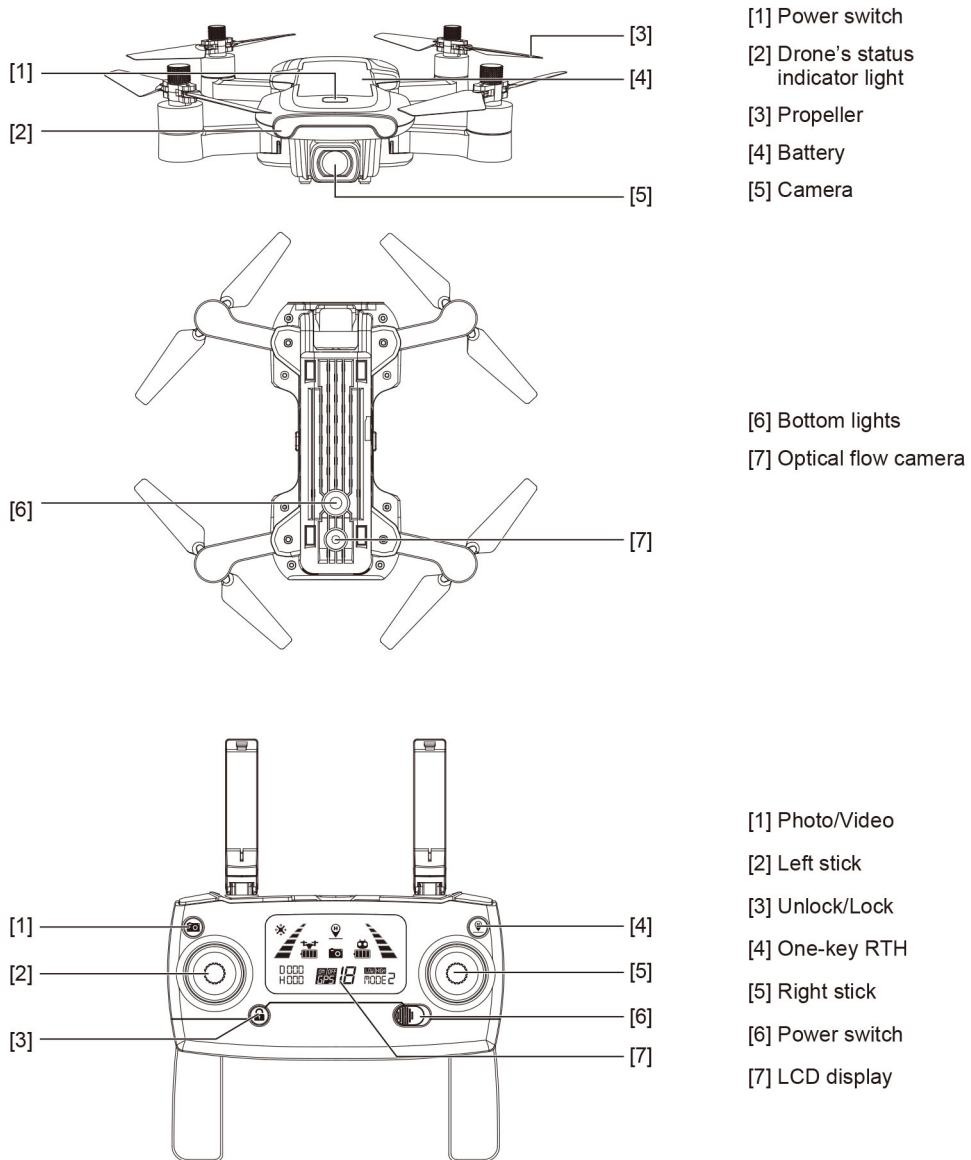
Step 2: Install 2*AA batteries into the battery compartment according to the given polarity (Pic. 2);

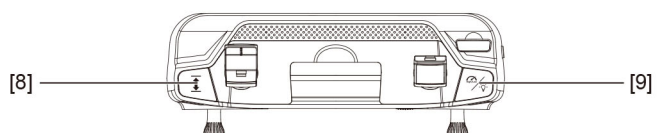
Step 3: Close the battery compartment (Pic. 3).



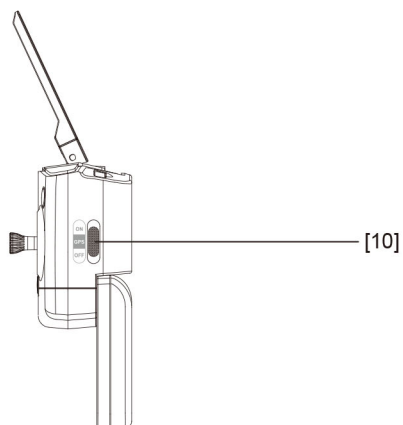
- Insert batteries with correct polarity.
- Non rechargeable batteries are not to be charged; the transmitter need 2*AA batteries for work.
- Do not mix old and new batteries.
- Do not mix alkaline, standard (carbon-zinc), or rechargeable (nickel-cadmium) batteries.
- Rechargeable batteries are to be removed from the aircraft before being charged.
- Rechargeable batteries are only to be charged under adult supervision.
- Exhausted batteries are to be removed from the aircraft.
- The supply terminals are not to be short-circuited.

Major Parts & Functional Switch





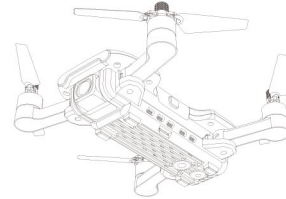
- [8] One-key takeoff/
One-key landing
- [9] Short- press for the
optical flow switch
Long- press for the
fast-slow speed switch.



- [10] GPS Switch

Aircraft

This section introduces functions and features of the B7.



Flight Modes

The following flight modes are available in Bugs 7.

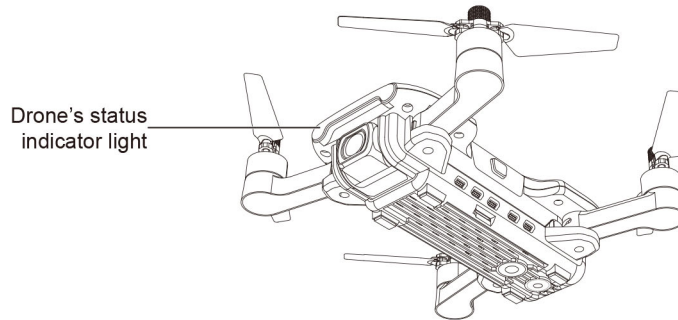
GPS mode:

- When the aircraft is in GPS mode, it can receive the GPS signal to realize accurate hovering.
- If the GPS signal is weak, the aircraft will enter into altitude-hold or optical flow position mode.
(For specific situation, please refer to APP status bar)
- Please make the aircraft land ASAP when the GPS signal is poor lest any accidents.
- By the way, please note do not fly the aircraft in any weak GPS signal place or narrow space place lest any flight accidents.

Optical flow positioning mode:

- If the aircraft does not receive GPS signal or GPS turned off and its altitude is within 3 meters, it automatically enters into the optical flow positioning mode. It utilizes the optical flow positioning mode to hover stably.
- If the aircraft does not receive GPS signal or GPS turned off, what's more its altitude is beyond 3 meters, it will enter into altitude-holding mode, cannot realize accurate hovering. In the situation, the user should be have some basic operations, recommended not to fly the aircraft.

Aircraft Status Indicator Lights



Aircraft status indicator

No.	Indicator status	Meanings
1	Indicator yellow light flash fast.	Aircraft 2.4GHz disconnected.
2	Indicator yellow green red light flash by turn.	Aircraft is in initialization detection status.
3	Indicator yellow light stays on.	No GPS signal, aircraft is in gesture mode.
4	Indicator green light stays on.	Good GPS signal, aircraft is preparing for GPS mode.
5	Indicator green light flash fast.	Aircraft is in gyroscope calibration status.
6	Indicator yellow light flash.	Aircraft is in compass horizontal calibration.
7	Indicator green light flash.	Aircraft is in compass vertical calibration.
8	Indicator red light flash slow.	Aircraft is nearly low voltage, 1/6 battery level left.
9	Indicator red light flash fast.	Aircraft is in low voltage, only 1/8 voltage left.
10	Indicator red light flash one time then stop for 1.5 seconds.	Something wrong with the gyroscope.
11	Indicator red light flash twice then stop 1.5 for seconds.	Something wrong with the barometer.
12	Indicator red light flash three times then stop for 1.5 seconds.	Something wrong with the compass.
13	Indicator red light flash four times then stop for 1.5 seconds.	Something wrong with the GPS module.
14	Indicator red light flash six times then stop for 1.5 seconds.	Something wrong with the vision positioning module.

Return to Home (RTH)

The Return-to-Home (RTH) function brings the aircraft back to the last recorded Home Point. There are 3 types of RTH: smart RTH, low battery RTH and failsafe RTH. This section describes these 3 scenarios in detail.

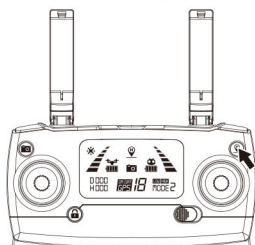
	GPS	Description
Home Point		If a strong GPS signal (satellites over 7) was acquired before takeoff, the Home Point is the location from which the aircraft launched. The GPS signal strength is indicated by the GPS icon( 7). The aircraft rear indicator lights will blink rapidly from yellow color to green color when the home point is recorded.



- During the return home flight, the aircraft will fly straight to return home point and cannot avoid obstacles. Please make sure there are no any obstacles on the path.
- Aircraft can not return to the Home Point when the GPS signal is weak or unavailable.
- Aircraft will stop ascending and immediately return to the Home Point if user moves the throttle stick in the aircraft reaches 15 meters altitudes or beyond during Smart RTH.
- If there is no GPS signal and the remote controller signal lost for more than 6 seconds, the aircraft can not Return-to-Home but descend slowly until land to the ground and lock the aircraft.

Aircraft status indicator

When the GPS signal is available (more than 7 satellites is presented), use the RTH button  on the remote controller (Pic. 1) or tap the RTH button in the “M RC PRO” APP (Pic. 2) and then follow the on-screen instructions to initiate Smart RTH. During the smart RTH, you can use the remote controller to guide the aircraft around obstacles. You can press the RTH button again to exit RTH procedure and regain control of the aircraft.



Pic. 1



Pic. 2

Low battery RTH

The low battery level failsafe is triggered when the intelligent battery is depleted to a point that may affect the safe return of the aircraft. Users are advised to return home or land the aircraft immediately when prompted.

1. If the rear indicator light flash slow, the battery icon in transmitter LCD screen is , with transmitter has “DIDI” sound. As only the aircraft is beyond 30 meters altitude or 100 meters distance, the aircraft will return home automatically. As long as the aircraft is in 100 meters distance, the user can cancel the return via “” button.
2. When the aircraft rear lights flash slowly, battery icon  is shown on the remote controller or on the “M RC PRO” APP. And steady “beep...beep...beep” sound is heard. At this moment, the aircraft will automatically return to the Home Point if the flying altitude is beyond 15 meters or the flying distance against the home point is beyond 15 meters. If the aircraft flying altitude is less than 15 meters or the flying distance is less than 15 meters, the aircraft will automatically land to the ground.



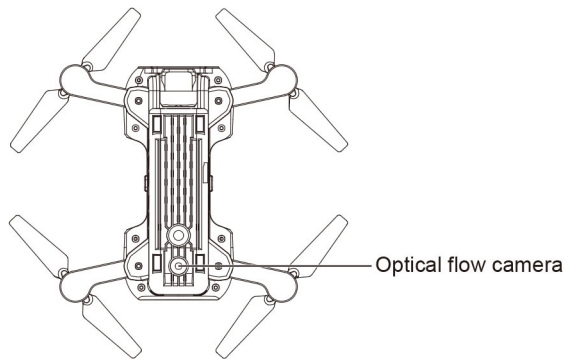
Attention: When the aircraft is automatically return home with Low Battery RTH function activated, you can not cancel the RTH procedure by pressing the RTH button to regain control of the aircraft.

Out of connection return home function

The GPS signal is good (the No. of GPS satellites is more than 7), the compass is working and the home point has been recorded successfully, if the control signal continuously interrupted for longer than 6 seconds and APP control turning off, the flight control system will take over the transmitter control, controlling the aircraft to fly return home point. If the control signal is restored during returning home, the returning home flight will continue unless the user cancel it by transmitter's return home button and get back the aircraft's control right.

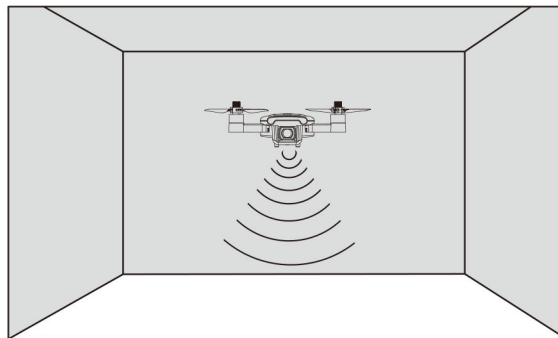
Vision System

The optical flow system consists of optical flow lens modules. The optical flow system is an image positioning system, obtaining the aircraft's position through the optical image thereby ensuring the the accurate positioning and safe flight.



Vision Positioning System function

The Vision Positioning System is typically used in indoor environment when GPS is weak or unavailable. It works best when the aircraft altitude is less than 3 meters.





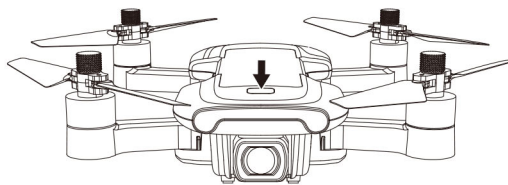
The measuring precision of optical flow system will be affected easily by the light strength and the features of object surface texture. Once the optical flow is unavailable, the aircraft will enter to altitude-holding mode automatically. Please be cautious in as following situations:

1. Fly fast at an altitude below 0.5m.
2. Fly over monochrome surfaces (like pure black, pure red, pure red and pure green).
3. Fly over strong light reflective surfaces or surfaces prone to reflection.
4. Fly over water or transparent object surfaces.
5. Fly over moving object surfaces (such as crowds, swaying juggles and glass).
6. Fly over an area where light changes dramatically and rapidly.
7. Fly over surfaces extremely dark ($\text{lux} < 10$) or extremely bright ($\text{lux} > 10,000$).
8. Fly over surfaces without clear textures.
9. Fly over surfaces with highly repeating textures (small grid brick in the same color).
10. Fly over surfaces that are tilting over 30 degrees.
11. Flying speed should be controlled not to be too fast. When the aircraft is 1 meter against the ground, the flying speed should not be over 5m/s; When the aircraft is 2 meter against the ground, the flying speed should not be over 14m/s.

- Keep sensors clean at all times.
- The vision system is only effective when the aircraft is within the altitude range of 3 meters.
- Make sure that the light is bright enough and the surfaces is with clear textures so that the vision system can acquire the movement information through recognizing the ground textures.
- The vision system may not function properly when the aircraft is flying over water, low light ground and surfaces without clear patterns or textures.
- If the light is dim, please turn on the optical flow supplement light.

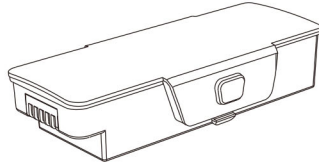
Aircraft Power Switch

Short-press the aircraft's power button, it will turn on, in the same time, the aircraft will have power-on sound and indicator light stays on. Long-press the power button for 3 seconds, the aircraft will turn off and indicator light will turn off too.

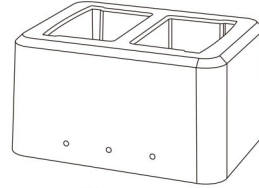


Aircraft Battery

- Made by high-energy battery cells;
- Standard battery capacity is 7.6V 1500mAh.



Battery

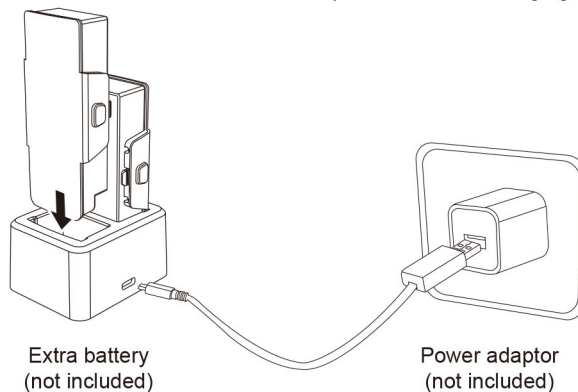


Charger

Charge the aircraft battery

- Please charge the battery fully before using it.
- Be sure you use the officially supplied USB charging cable to charge.
- The charging time is about 2.5 hours.

*This aircraft charging data is based on 5V 2A power adaptor. Different types power adaptor and power device will affect the charging time. It is recommended that 5V 2-2.1A adaptor be used for charging.



- Need adult supervision when this aircraft is being played by children.
- Only batteries of the same or equivalent type as recommended are to be used.
- Insert batteries with correct polarity.
- Rechargeable batteries are to be removed from the aircraft before being charged.
- Rechargeable batteries are only to be charged under adult supervision.
- Exhausted batteries are to be removed from the aircraft.
- The supply terminals are not to be short-circuited.
- The charging line to be used with the product should be regularly examined for potential hazard, such as damage to the cable or cord, plug, enclosure of other parts and that in the event of such damage, the product must not be used until that damage had been properly removed.
- Please charge the battery about 1 hours after flight to save.
- If no play for long time, recommend to use out and recharge the battery one time per month lest the battery damaged for over discharge.

Attach and Detach the Propellers

Blade assemble and disassemble

●Attach propeller A:

Put the propeller with marking 'A' into the clockwise rotating motor shaft (the side marked A should be upwards). Then, put the silicone rubber ring into the center bore of the propeller. Last, choose the propeller screw with dot and put it onto the motor shaft; tighten the screws by counter-clockwise.

●Attach propeller B:

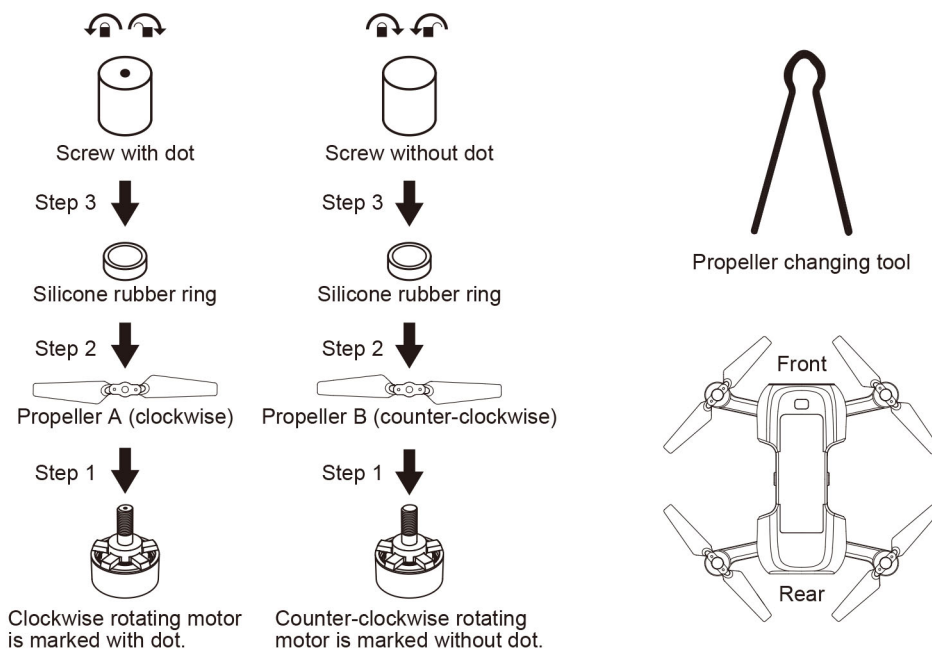
Put the propeller with marking 'B' into the counter-clockwise rotating motor shaft (the side marked B should be upwards). Then, put the silicone rubber ring into the center bore of the propeller. Last, choose the propeller screw without dot and put it onto the motor shaft; tighten the screw by clockwise.

●Detach the propellers:

Hold the aircraft brushless motor and unscrew the screw without dot by counter-clockwise (screw with dot should be rotated by clockwise) to take apart the propeller.



Attention: Please install all fittings step by step as below pictures. Keep in mind that the propellers are distinguished by A & B mark and propellers screws are distinguished by dot mark. please pay attention to your rotation direction.

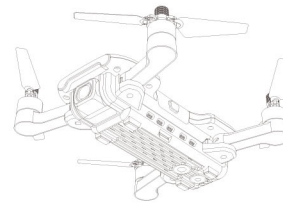




- Please make sure that the clockwise and the counter-clockwise propellers are installed on the correct motors, because the aircraft will not fly normally for wrong propellers installation.
 - Be aware of the sharp edges of the propellers. Handle with care.
 - **ONLY** use the factory approved propellers. **DO NOT** mix propellers types.
 - Stand clear of the motors and **DO NOT** touch the propellers when they are spinning.
 - Check that the propellers and motors are installed correctly and firmly before every flight.
 - Ensure that all propellers are in good condition before each flight. **DO NOT** use aged, chipped, or broken propellers.
 - To avoid injury, **STAND CLEAR** of and **DO NOT** touch propellers or motors when they are spinning.
 - **ONLY** use designated propellers for a better and safer flight experience.
-

Remote Controller

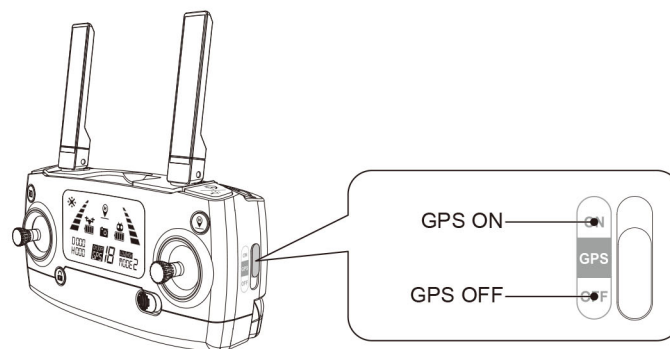
This section describes the features of the remote controller, including the instruction on controlling the B7.



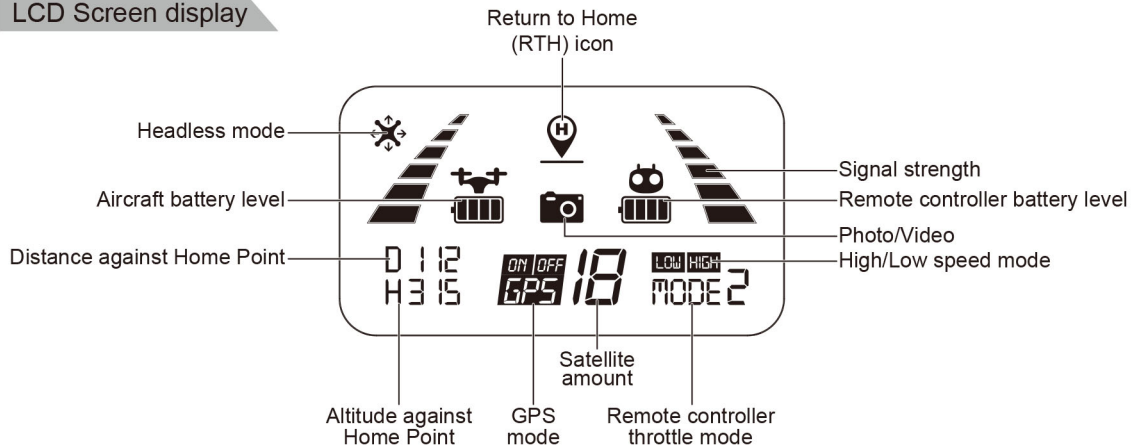
Remote Controller Functions and Status

Flight mode switch

Choose the flight mode by switching the GPS button to ON/OFF position. The on-working flight mode “^{ON/OFF}GPS” is shown on the LCD display.

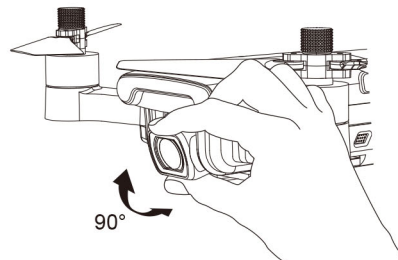


LCD Screen display



Adjust the gimbal camera angle manually

By rotating the aircraft's camera manually, the shooting angle of gimbal camera will be adjusted. Please adjust the angle according to the using situation.



Photo/Video

Short-press the button indicated as below, the camera icon "📷" on the LCD screen flashes once, the camera takes one photo;

Long-press the same button, the video icon "📹" on the LCD screen flashes slowly, the camera is taking video. Long-press again will exit shooting.

