Dragonfish Series Maintenance Manual

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Introduction

Dragonfish series tilt-rotor UAS (Unmanned Aircraft Systems), as the industry-level UAS aviation products, is highly professional, which can be reflected by not only the products themselves but in the whole life cycle. To address its superiority, both operators and maintenance workers of the product series must be equipped with full aviation knowledge and certain understandings of aviation products.

The *Dragonfish Series Maintenance Manual* (hereinafter referred to as "the Manual") is a tool document prepared based on the aforesaid requirements, which can be referred to by the maintenance workers and users of Dragonfish series products (hereinafter referred to as "Dragonfish") for necessary inspection and maintenance in their whole life cycle so that Dragonfish could work efficiently with a longer service life.

This Manual mainly contains the professional opinions and attentions concerning inspection and maintenance of Dragonfish, which can be consulted by users for their daily maintenance. Corresponding forms are also available to record maintenance status of Dragonfish within the whole life cycle and finally be sorted as the maintenance files of the UAS.

Prior to the use and maintenance of Dragonfish, please carefully read the descriptive documents, including *Operating Instructions* and *Maintenance Manual*.

Scope of Application

This section describes the scope of application of this Manual, including the scope of applicable models, applicable conditions of this Manual and the correspondence of operators and maintenance workers in operation and maintenance.

Applicable Models

This manual is applicable to Dragonfish Standard series UAS manufactured by Shenzhen Autel Robotics Technology Co., LTD.

Applicable Users

This Manual is applicable to the users of models specified herein. All operations in this Manual must be subject to the scope specified in the table below.

Operations	Personnel
Daily inspection and maintenance	Users having undergone product use training and maintenance workers certified or authorized formally
Regular inspection and maintenance	Maintenance workers certified or authorized formally
On-site accident disposal	Users having undergone product use training and maintenance workers certified or authorized formally
Loss assessment of accident	Maintenance workers certified or authorized formally
Maintenance of products after accident	Maintenance workers certified or authorized formally
Verification after accident	Maintenance workers certified or authorized formally
File record	Users having undergone product use training and maintenance workers certified or authorized formally

Applicable Environment

All operations in this Manual must be performed under the required conditions instead of in an illegal and unsafe environment. This section sets down the basic demands of some operations. Any special operation environment will be further illustrated in the following chapters in detail.

Operations	Environment Requirements

Daily inspection and maintenance	1. Clean environment with no foreign matters, dusts or accumulated water; 2. No irrelevant personnel or foreign matters within a radius of 10 m; 3. No electromagnetic or signal interference; 4. No signal blocking, etc.
Regular inspection and maintenance	1. Professional regular check and maintenance environment; 2. Clean environment with no foreign matters, dusts or accumulated water; 3. No irrelevant personnel or foreign matters within a radius of 10 m; 4. No electromagnetic or signal interference; 5. No signal blocking, etc.
On-site accident disposal	1. No risk to disposal staff.
Loss assessment of accident	1. No risk to loss assessment staff.
Maintenance and verification of after accident	The same as the requirements for regular check and maintenance environment.
Making records	1. In principle, recording staff could finish relevant records of inspection and maintenance on the basis of ensuring personal safety.

Daily Inspection and Maintenance

Reasonable routine inspection and regular maintenance are critical to extending the service life of Dragonfish, enhancing its reliability and reducing safety hazards.

Users are suggested to, based on product features and use process, carry out the following route inspection and maintenance under general conditions.

1) Prior to each field operation, carry out <Flight Preparation Inspection>, where conditions permit. Remove all problems and ensure Dragonfish meets all flight requirements;
2) Carry out <Pre-flight Inspection> before each UAV takes off to ensure its status. Manual <Pre-flight Inspection> that is not the first time can be skipped for uninterrupted operation.
3) Carry out <Post-flight Inspection> upon the landing of each UAV, which cannot be skipped.
4) Carry out <Post-flight Maintenance> after the completion of flight per day or if it is more than 12 hours before the next flight or if any problem that needs timely maintenance is discovered during <Post-flight Inspection>.

Flight Preparation Inspection

List of Power-off Inspections

Types	Emphasis
Body structure	Prior to assembly: 1. Visually inspect the surface of all UAV parts and in particular, the surface of key parts to confirm their intactness, structural deformation, damage, rupture, cracking or surface dirt; clean or replace them in time, if any of the phenomena exists; 2. Shake all parts by hands to confirm if there is any abnormal

	sound; 3. Inspect if front and rear undercarriages are mounted stably or become loose or move; 4. Inspect the connection of right and left wingtips and wing and if they become loose or move along extended direction; inspect if connecting rod is bent or deformed; 5. Inspect if the connecting rod at the connected site of wing and body is stable, worn, loose or deformed; 6. Inspect if the connection shackle at wing and body ends are mounted stably, or become loose or deformed; 7. Inspect if the interface at both ends of connected part of wing and body are connected with wing and body reliably and if there is any dirt or foreign matter in the interface; 8. Inspect if the interface at both ends of connected site of tail wing and body is mounted stably and if there is any dirt or foreign matter in the interface; 9. Inspect if RTK antenna has been connected firmly; 10. Rotate the control plane of wingtips at both sides and tail wing manually to confirm if there is any blockage in slow and quick rotation processes and any abnormal sound; 11. Inspect if air pipe is mounted stably or moves and if there is any dirt or blockage; 12. Inspect if ultrasonic device is mounted stably, if there is any dirt on surface and if heat emission hole is blocked by foreign matters; 13. Inspect if all covering caps are mounted correctly and screws are locked. <u>After assembly:</u> 1. Inspect if the whole aircraft is connected stably, shackle is locked and tail wing is mounted stably; 2. Inspect if there is any connection joint between wing and body and between tail wing and body.
Power	1. Confirm the model of both motor and paddle; 2. Inspect if the motor has been connected with the body stably; 3. Inspect if wingtip motor is connected with wingtip stably; 4. Rotate motor manually to confirm rotation smoothness, and if there is any blockage or abnormal sound; 5. Inspect if paddle has any abnormalities, such as obvious deformation, damage, aging or softening. If so, clean and replace it in time; 6. Inspect if there is any dirt or foreign matter on motor and propeller; if so, clean them in time; **7.** Inspect if the rotation direction of paddle is correct after mounting it correctly;

Battery	1. Inspect if there is any damage or dirt on battery surface; if so, replace or clean it in time; 2. Inspect if there is any dirt or foreign matter on the interface of battery and battery bin; 3. Inspect if the battery can be mounted stably and assembly-disassembly button can bounce normally after mounting battery correctly.
Gimbal	1. Inspect if the gimbal is connected with body stably; 2. Inspect if gimbal can be fully connected with gimbal support after mounting gimbal correctly; 3. Inspect the intactness of gimbal surface and if there is any blockage while rotating gimbal along different axles; 4. Inspect if there is any dirt on lens; 5. Inspect if SD card slot is fastened and free of extruding or sheltering.
Remote control system	1. Inspect if there is any damage, foreign matter or dirt on the surface of remote control; 2. Inspect if antenna is mounted stably and still normal after bending; 3. Inspect if rocker is in the neutral position and if all rockers, gears and impellers are smooth or contain any foreign matters; 4. Inspect if there is any water spot or foreign matter in heat dissipation site.
Base station system	1. Inspect if the base station surface is dirty or deformed and if base station screws are mounted correctly; 2. Inspect if water and dust-proof plug of base station can be mounted normally; 3. Inspect if there is any dirt or foreign matter on the heat dissipation port of base station; 4. Inspect if there is any damage of antenna and feeder; 5. Inspect if there is any foreign matter or rust in antenna, feeder and base station interface; 6. Inspect if antenna and feeder can be connected reliably and firmly; 7. Inspect if tripod is damaged or can be erected stably.
Accessories and tools	1. Several TYPE-C 3.0 USB cables; 2. 1 pair of standby wingtip paddle (9”); 3. 1 pair of standby body paddle (16”); 4. Standby SD card; 5. Battery charging suit; 6. Base station charging suit; 7. 1 set of screwdriver tool, several screwdrivers of different models, several rolled strips and several dry soft clothes;

	8. Other emergency materials.

List of Power-on Inspections

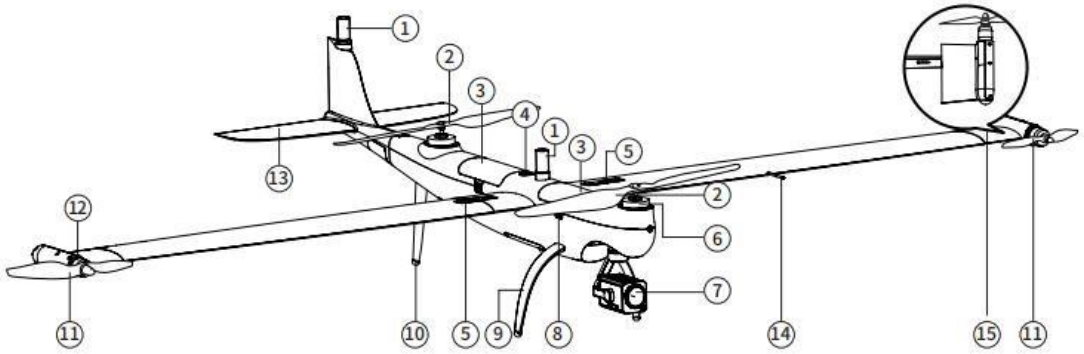
Types	Emphasis
Body structure	1. Inspect if the body has any abnormal movement or sound; 2. Rotate wingtip softly to inspect if there is any excessive clearance or gap at wingtip; 3. Rotate tail wing softly to inspect if there is any excessive clearance or gap at the control plane of tail wing; 4. Inspect if the wingtip navigation light and tail wing flight light flicker normally and synchronously.
Battery	1. Inspect if all batteries are fully charged; 2. Charge and discharge batteries that have been left idle for over 1 month for once prior to flight; 3. Inspect if the battery capacity of aircraft and cell voltage are normal and if battery circulation times are relatively consistent via APP battery page.
Gimbal	1. Inspect if gimbal can finish self-inspection normally; 2. View if there is any corresponding error prompt in gimbal via APP; 3. View if there is any photo picture via APP; 4. Try to control gimbal rotation via remote control to confirm if there is any abnormality in the process, such as blockage; 5. Try to control camera via remote control to confirm if there is any abnormality.
Base station system	1. View if the base station is fully charged via APP; 2. View if RTK status of base station, WIFI status and aircraft connection status of base station are normal via base station indicator lamp; 3. View WIFI connection status and signal strength, RTK status and signal strength, and image transmission status and signal strength of base station via APP.
Communication link system	1. Inspect the connection status of image transmission telemetering link and 5.8 G remote control link via APP;
Flight control system	1. View and confirm relevant setting status via APP;
Navigation system	1. Confirm if navigation initialization process is finished; 2. Rotate aircraft along three axles and confirm if aircraft status is normal and change direction is normal via APP flight instrument; 3. Confirm if RTK positioning solution is normal via APP.
Sensor	1. Inspect if sensor has any error prompt via APP;
Body	1. Obtain the version No. of all modules and confirm the matched relationship between module versions and APP version via APP;

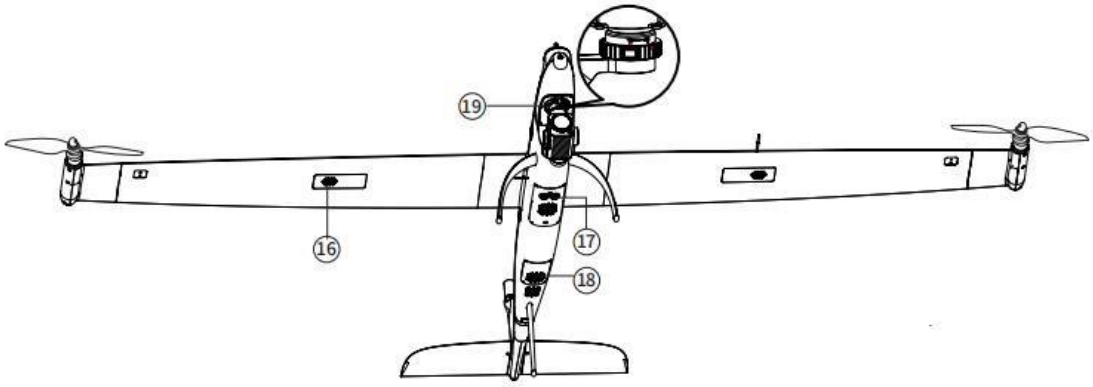
	2. Confirm if there is any error information of automatic inspection by running self-inspection process via APP;
Power	1. Unlock ground trial run with an idle speed manually after self-inspection, to observe motor rotation and confirm rotation direction of motor;

List of Flight Tests

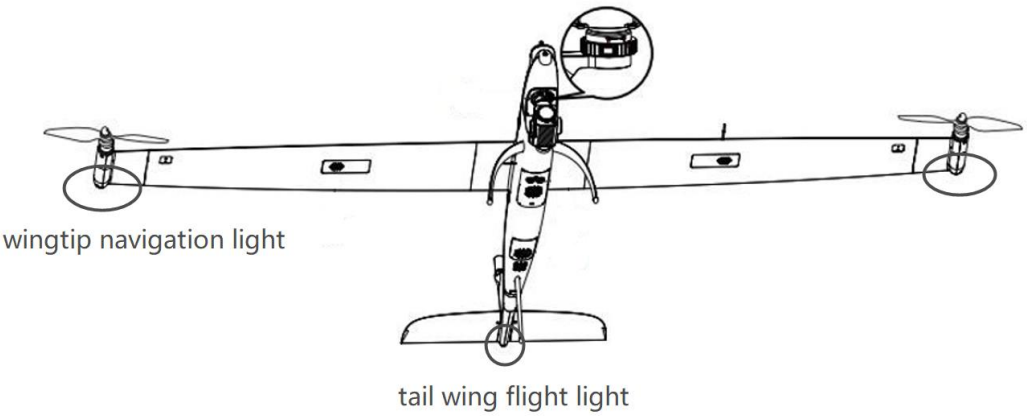
Types	Emphasis
Trial flight test	1. Confirm the application of test environment, which must be free of strong electromagnetic interference, personal and property safety hazard and no-fly area or restricted area; the flight zone is legal; 2. Carry out prior-flight inspection; 3. Unlock manually after passing self-inspection for hovering at a height of 5 m. Push joysticks at all directions to observe the status of aircraft. 4. Control the landing of aircraft; 5. Carry out self-inspection again and then unlock it manually; transfer modal after climbing to a height of 70m; 6. Carry out spiral climb and descending under fixed wing modal to observe the status of aircraft; 7. Switch to multi-rotor modal manually and then control aircraft landing; 8. Make verification by setting automatic task based on field operation demands.
Inspection after landing	1. Inspect if the appearance of paddle, motor and body is normal and free of abnormalities such as cracking, loosening, rupture, etc.; 2. Inspect if the motor temperature is normal; 3. Inspect clearance of steering engine.

Body structure diagram：



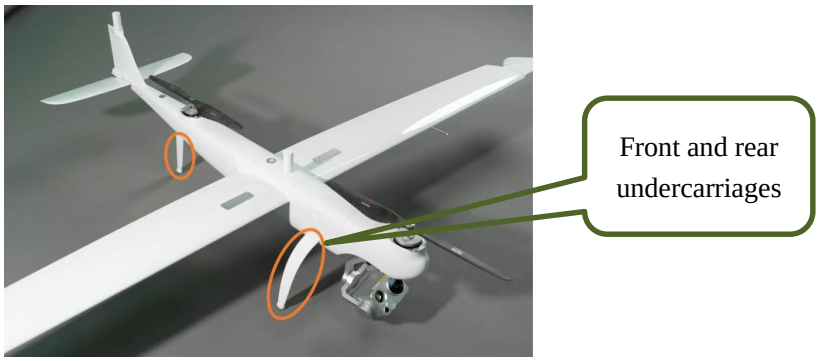


① RTK antenna
② Fuselage blade
③ Smart battery
④ Power button / indicator
⑤ Wing buckle
⑥ Fuselage motor
⑦ Gimbal camera
⑧ Battery disassembly button
⑨ Front tripod
⑩ Rear tripod
⑪ Wingtip paddle
⑫ Wing motor
⑬ Horizontal tail
⑭ Pitot tube
⑮ Rotating wingtip
⑯ GPS
⑰ Ultrasonic sensor



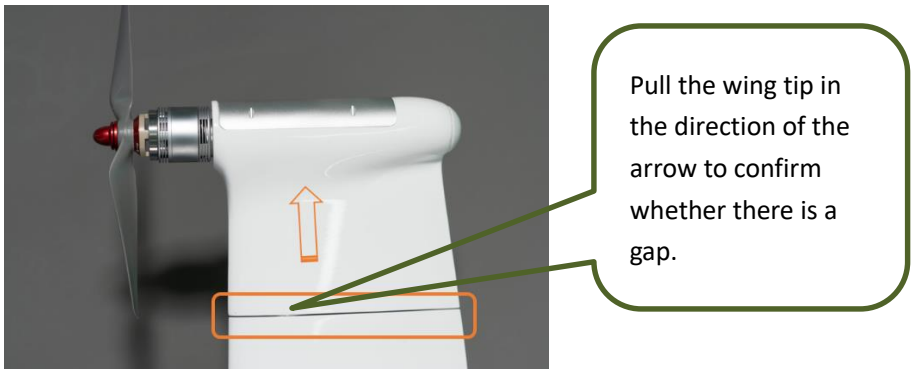
Indicators: Left wing tip indicator flashes red, right wing tip indicator flashes green, and tail wing indicator flashes white.

Pre-flight Inspection

Types	Emphasis
Body	1. Visually inspect the surface of all UAV parts and in particular, the surface of key parts to confirm their intactness, structural deformation, damage, rupture, cracking or surface dirt; clean or replace them in time, if any of the phenomena exists;  Solution: a. In case of deformation, damage and rupture of the machine body, please contact the local after-sales service in time to replace the damaged parts. b. If the body surface is dirty, please use a non-corrosive cleaner to clean the dirty spots. 2. Shake all parts by hands to confirm if there is any abnormal sound; Solution： Shake the fuselage, wing, tail and gimbal camera. If you find abnormal noise in a part, please contact after-sales technicians to check the abnormal noise parts. 3. Inspect if front and rear undercarriages are mounted stably or become loose or move;  Solution： If there is looseness or displacement, please return to the local after-sales repair

center for fastening.

4. Inspect the connection of right and left wingtips and wing and if they become loose or move along extended direction; inspect if connecting rod is bent or deformed;

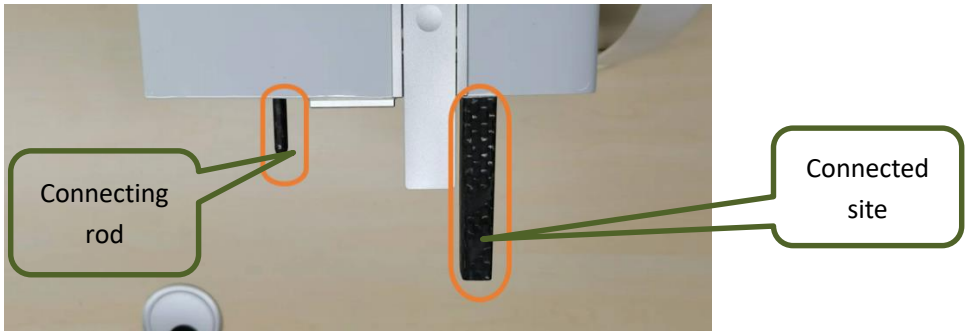


Solution：

a. When drawing, please refer to the gap between the wing tip and the wing shown in the box in the figure to see if the gap becomes larger. If so, please contact the local after-sales technician for inspection and maintenance.

b. Manually rotate the wing tip forward and backward to observe whether there is interference between the wing tip and the wing. If there is interference, please contact the local after-sales service in time to replace the interfering wing parts.

5. Inspect if the connecting rod at the connected site of wing and body is stable, worn, loose or deformed;

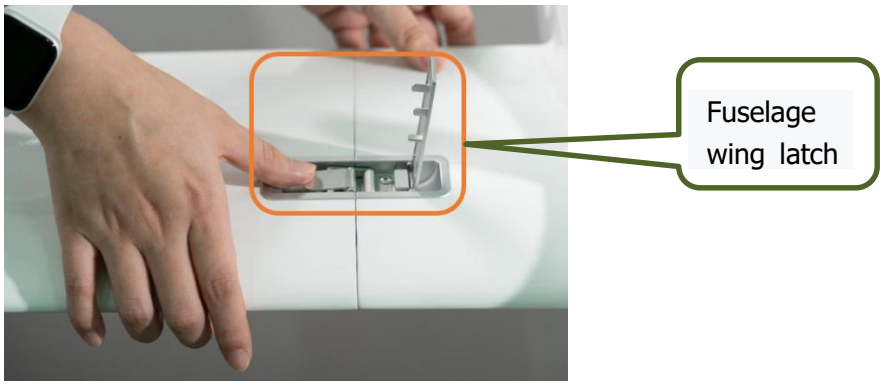


Solution：

a. Shake the connecting rod and connected site to confirm whether they are loose. If they are loose, please contact the local after-sales personnel for maintenance;

b. Visually check connecting rod and connected site to confirm whether there is serious deformation. If so, please contact the local after-sales service personnel in time to replace the fuselage.

6. Inspect if the connection shackle at wing and body ends are mounted stably, or become loose or deformed;

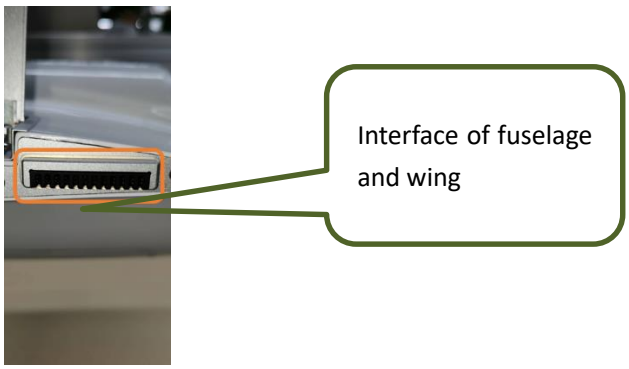


Solution：

a. Visually inspect the latch and cover plate to confirm whether there is serious deformation. If so, please contact the local after-sales technicians to repair and replace the latch;

b. Close the latch and confirm whether the latch base is displaced. If so, please contact the local after-sales technicians to repair and replace the latch;

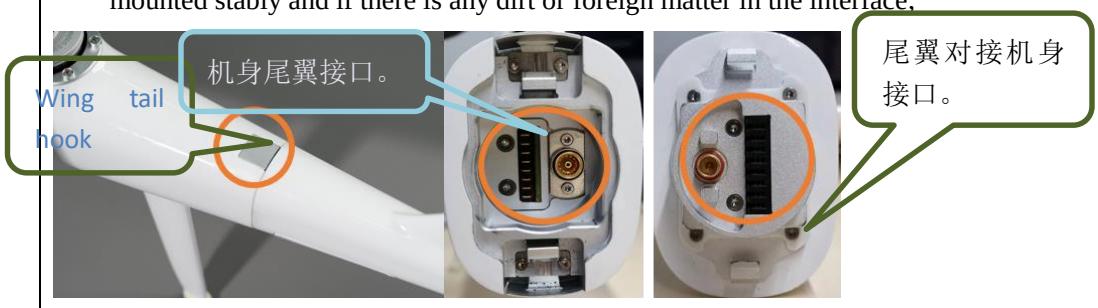
7. Inspect if the interface at both ends of connected part of wing and body are connected with wing and body reliably and if there is any dirt or foreign matter in the interface;



Solution：

Visually inspect the interface surface. If there is any dirt or foreign matter, please contact the local after-sales technician for guidance and cleaning.

8. Inspect if the interface at both ends of connected site of tail wing and body is mounted stably and if there is any dirt or foreign matter in the interface;



Solution:

a. Insert the wing tail into the fuselage and check whether the upper and lower hooks can be reset and locked normally. If not, shake the tail slightly and then observe whether the hooks can be reset again:

a1. If it can be reset, to use normally;

a2. If it cannot be reset, contact local after-sales technicians for inspection and maintenance.

b. Visually inspect the interface surface. If there is any dirt or foreign matter, please contact the local after-sales technician for guidance and cleaning.

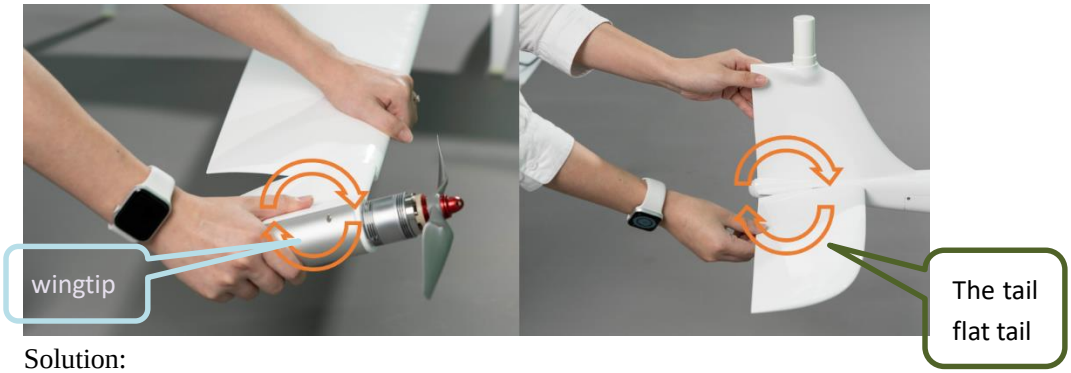
9. Inspect if RTK antenna has been connected firmly;

Solution:

a. Rotate the RTK antenna slightly clockwise to confirm whether it is tightened. If not, tighten it slightly.

b. Then shake the RTK antenna to check whether there is shaking. If there is shaking, screw out the RTK antenna anticlockwise, tighten the fixing base screw, and then screw in the RTK antenna clockwise again.

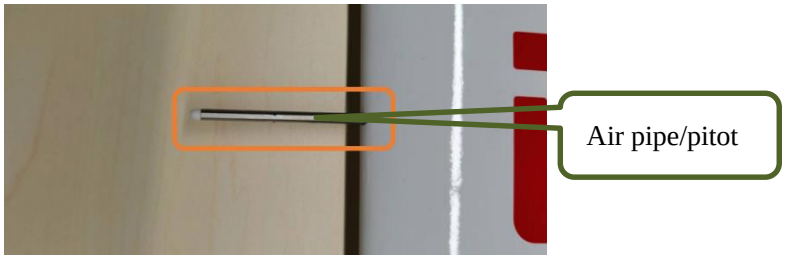
10. Rotate the control plane of wingtips at both sides and tail wing manually to confirm if there is any blockage in slow and quick rotation processes and any abnormal sound;



Solution:

In case of jamming or abnormal noise, please contact local after-sales technicians for inspection and maintenance.

11. Inspect if air pipe is mounted stably or moves and if there is any dirt or blockage;



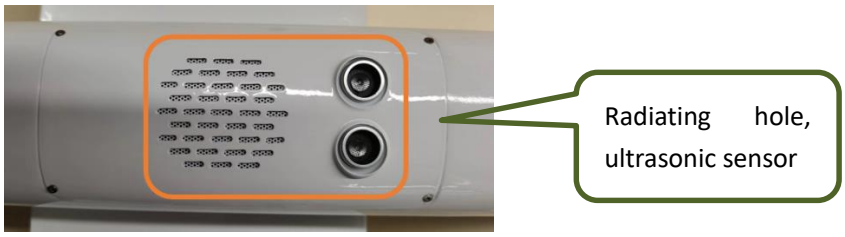
Solution:

a. If pitot shakes, please contact local after-sales technicians for inspection and

maintenance;

b. If there is dirt or blockage, please contact the local after-sales technician for guidance and cleaning.

12. Inspect if ultrasonic device is mounted stably, if there is any dirt on surface and if heat emission hole is blocked by foreign matters;



Solution:

If there is dirt or blockage, please contact the local after-sales technician for guidance and cleaning.

13. Inspect if all covering caps are mounted correctly and screws are locked.

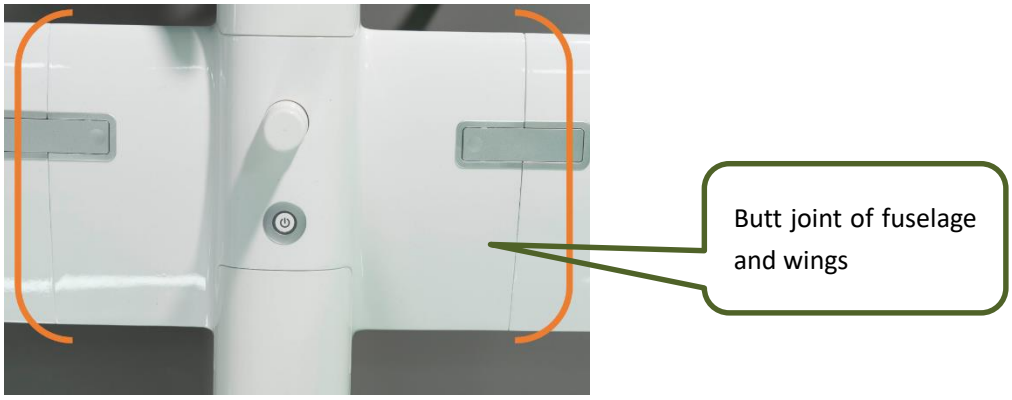
Solution:

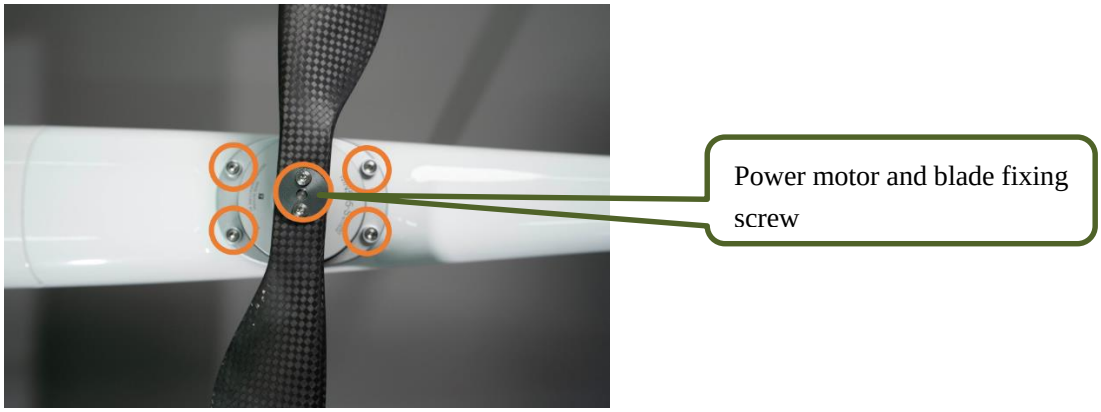
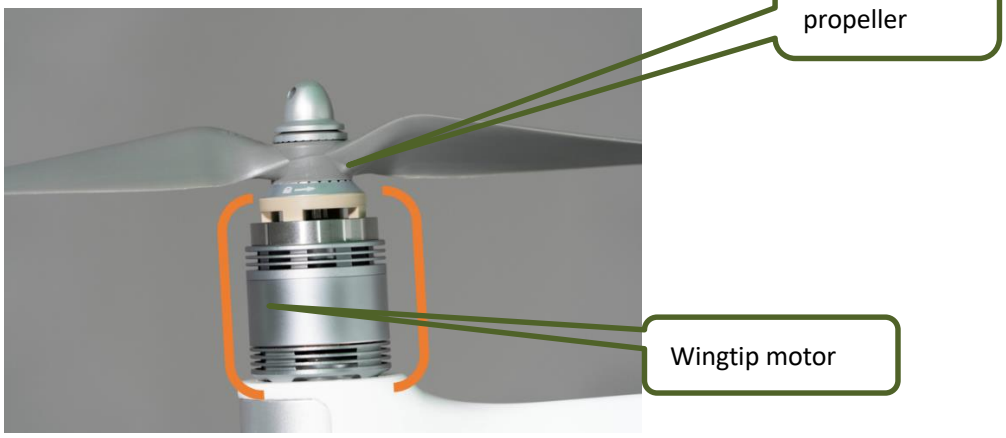
a. If there is a large gap in the installation of the cover, please contact the local after-sales technicians to confirm whether the cover is installed correctly and guide the reinstallation;

b. Check whether there are missing screws at the screw holes on the outer surface of the whole machine. If so, please contact the local after-sales technicians to send the screws to you and guide the installation;

c. Check whether the screws on the outer surface of the whole machine are loose. If so, tighten the screws.

14. Inspect if there is any connection joint between wing and body and between tail wing and body.



	Solution: After the wing and tail are inserted into the fuselage, fasten the lock and hook, and check the gap at the wing body connection and tail connection. If the gap is greater than 1mm, please contact the local after-sales technicians for positioning analysis to confirm whether to repair or replace the parts.
Power	1. Inspect if the motor has been connected with the body stably;  Solution: a: If you find the blade or motor shaking, please check whether the screws in the frame in the figure are fastened, b: If the screws are found to be loose, please contact the local after-sales technicians for guidance and tightening, c: In case of screw tightening, please contact after-sales technicians to replace the power motor. 2. Inspect if wingtip motor is connected with wingtip stably;  Solution: a: Shake the motor body in the frame in the figure and observe whether the motor shakes. If the motor shakes, please contact the local after-sales technician for inspection and maintenance. b: If the quick removal propeller has obvious shaking and empty position, please purchase spare parts in time for replacement. 3. Rotate motor manually to confirm rotation smoothness, and if there is any blockage or abnormal sound; 4. Inspect if paddle has any abnormalities, such as obvious deformation, damage,

	aging or softening. If so, clean and replace it in time; 5. Inspect if the rotation direction of paddle is correct after mounting it correctly;
Battery	1. Inspect if there is any damage or dirt on battery surface; if so, replace or clean it in time; 2. Inspect if there is any dirt or foreign matter on the interface of battery and battery bin; 3. Inspect if the battery can be mounted stably and assembly-disassembly button can bounce normally after mounting battery correctly. 4. Inspect if the waterproof glue of battery and battery bin has been pasted closely and if the joint in the middle is excessive after battery mounting.
Gimbal	1. Inspect if the gimbal is connected with body stably; 2. Inspect if gimbal can be fully connected with gimbal support after mounting gimbal correctly; 3. Inspect the intactness of gimbal surface and if there is any blockage while rotating gimbal along different axles; 4. Inspect if there is any dirt on lens; 5. Inspect if SD card slot is fastened and free of extruding or sheltering.
Remote control system	1. Inspect if there is any damage, foreign matter or dirt on the surface of remote control; 2. Inspect if antenna is mounted stably and still normal after bending; 3. Inspect if rocker is in the neutral position and if all rockers, gears and impellers are smooth or contain any foreign matters; 4. Inspect if there is any water spot or foreign matter in heat dissipation site.
Base station system	1. Inspect if the base station surface is dirty or deformed and if base station screws are mounted correctly; 2. Inspect if water and dustproof plug of base station can be mounted normally; 3. Inspect if there is any dirt or foreign matter on the heat dissipation port of base station; 4. Inspect if there is any damage of antenna and feeder; 5. Inspect if there is any foreign matter or rust in antenna, feeder and base station interface; 6. Inspect if antenna and feeder can be connected reliably and firmly; 7. Inspect if tripod is damaged or can be erected stably.

List of Power-on Inspections

Types	Emphasis
Body structure	1. Inspect if the body has any abnormal movement or sound; 2. Rotate wingtip softly to inspect if there is any excessive clearance or gap at wingtip; 3. Rotate tail wing softly to inspect if there is any excessive clearance or gap at the control plane of tail wing; 4. Inspect if the wingtip navigation light and tail wing flight light flicker normally and synchronously. 5. Inspect the mounting direction of paddle.

Battery	1. Inspect if all batteries are fully charged; 2. Inspect if the battery capacity of aircraft and cell voltage are normal and if battery circulation times are relatively consistent via APP battery page.
Gimbal	1. Inspect if gimbal can finish self-inspection normally; 2. View if there is any corresponding error prompt in gimbal via APP; 3. View if there is any photo picture via APP; 4. Try to control gimbal rotation via remote control to confirm if there is any abnormality in the process, such as blockage; 5. Try to control camera via remote control to confirm if there is any abnormality.
Remote control system	1. Inspect if the electric quantity of remote control is full; 2. Inspect if it can start and operate normally via APP program; 3. Inspect if automatic task file conforms to operation demands and is safe.
Base station system	1. View if the base station is fully charged via APP; 2. View if RTK status of base station, WIFI status and aircraft connection status of base station are normal via base station indicator lamp; 3. View WIFI connection status and signal strength, RTK status and signal strength, and image transmission status and signal strength of base station via APP. 4. Inspect the connection status of base station indicator lamp.
Communication link system	1. Inspect the connection status of image transmission telemetering link and 5.8 G remote control link via APP;
Flight control system	1. View and confirm relevant setting status via APP;
Navigation system	1. Confirm if navigation initialization process is finished; 2. Rotate aircraft along three axles and confirm if aircraft status is normal and change direction is normal via APP flight instrument; 3. Confirm if RTK positioning solution is normal via APP.
Sensor	1. Inspect if sensor has any error prompt via APP;
Body	1. Obtain the version No. of all modules and confirm the matched relationship between module versions and APP version via APP; 2. Confirm if there is any error information of automatic inspection by running self-inspection process via APP;
Power	1. Try to unlock ground trial run with an idle speed manually after self-inspection (it can be skipped), to observe motor rotation and confirm rotation direction of motor;

Post-flight Inspection

List of Power-on Inspections

Types	Emphasis
Body structure	1. Inspect if UAV parts are damaged, collided or deformed; 2. Inspect if all connection structures are free of abnormalities, such as rupture and loosening; 3. Inspect if the clearance of steering engine becomes excessive further.
Power	1. Inspect if paddles are free of abnormalities such as damage and deformation; 2. Inspect if electrically turning temperature of motor is normal.
Battery	1. Inspect if battery is normal via APP battery page; 2. Inspect is battery is overheated.
Gimbal	1. Inspect if gimbal is normal and free of abnormal action or sound.

List of Power-off Inspections

Types	Emphasis
Body structure	1. Rotate steering engine manually to confirm if there is abnormality such as abnormal sound or blockage.
Battery	1. Inspect if battery has any abnormality such as unstable connection; 2. Inspect is battery has any abnormality such as damage.

Post-flight Maintenance

Types	Emphasis
Body structure	1. Dismantle UAV parts correctly; 2. Clean the dirt and foreign matters on all parts and wipe all these parts with clean soft clothes; 3. Place all structural parts properly.
Power	1. Dismantle and place paddles properly;
Battery	1. Use special battery explosion-proof tank for running and storing batteries; 2. Charge battery using dedicated battery charger; 3. Charge and discharge battery that is left unused for over 1 month fully.
Gimbal	1. Dismantle and store gimbal properly; 2. Clean and wipe it using clean soft cloth; 3. Export and store the information in SD card in time.
Remote control system	1. Place and store remote control properly; 2. Clean and wipe it using clean soft cloth; 3. Charge it using dedicated recharger; 4. Charge and discharge battery that is left unused for a long time.
Base station system	1. Store base station properly; 2. Clean and wipe it using clean soft cloth;

	3. Charge it using dedicated recharger; 4. Charge and discharge battery that is left unused for a long time.
Entire system	1. Confirm the version of all modules and APP software.

Regular Inspection and Maintenance

According to the regulations of aviation industry and traffic mode, it is suggested to maintain Dragonfish series by following the plan combined with daily and regular inspection and maintenance so as to ensure flight safety and optimize the best use status of UAV.

Type A inspection: Refers to the descriptions about daily inspection and maintenance of last chapter.

Type B, C and D inspection: Details are available in the regular inspection and maintenance of this chapter.

Regular Inspection

Type and Cycle of Regular Inspection and Maintenance

Type	Maintenance Suggestions	Maintenance Cycle	Maintained Contents
Type B inspection	Factory maintenance (optional)	100 flight hours accumulatively or 6-month use period	1. Conventional maintenance (see post-flight maintenance) 2. Power system detection 3. Battery detection 4. Troubleshooting
Type C inspection	Factory maintenance (compulsory)	200 flight hours accumulatively or 12-month use period	1. Conventional maintenance (see post-flight maintenance) 2. Power system detection and change 3. Battery detection and change 4. Change of quick-worn parts 5. Troubleshooting 6. Deep cleaning
Type D inspection	Factory maintenance (compulsory)	300 flight hours accumulatively or 1 8-month use period	1. Conventional maintenance (see post-flight maintenance) 2. Power system detection 3. Battery detection 4. Detection of body via disassembly 5. Change of core parts 6. Change of quick-worn parts 7. Troubleshooting 8. Deep cleaning

Emphasis of Regular Inspection and Maintenance

Inspection and Maintenance Items	Emphasis

Inspection of power system	1. Dismantle wingtip structure; 2. Inspect if transmission structure is normal, such as sleeve and connecting rod; 3. Inspect if wingtip steering engine is normal; 4. Dismantle wingtip motor; 5. Detect if there is an excessive clearance in wingtip quick release structure; replace quick release structure in time, if there is an excessive clearance or other abnormalities; 6. Detect motor and dynamic balance after mounting and dismantling paddle; 7. Dismantle motor; 8. Detect if the motor seat and paddle seat are worn or deformed; replace those with an abnormal structure in time; 9. Detect motor and dynamic balance after paddle installation; 10. Recover power system and install it on body; detect power system and confirm installation and its performance.
Change of power system	1. Change defective parts of power system in Type B and D inspection and replace all parts of power system compulsorily in Type C inspection.
Battery detection	1. Inspect basic battery information via APP to confirm if there is any abnormality; update battery version; 2. Carry out dedicated battery detection; 3. Maintain battery; 4. Maintain battery with 50 times of charging and discharging times by charging and discharging it for once compulsorily and carry out factory detection for battery with 100 times of charging and discharging compulsorily; it is suggested to quit and scrap battery with 200 times of charging and discharging or a use term of over 1 year to avoid affecting flight safety.
Battery maintenance	1. Charge and discharge battery for once in standard manner; 2. Check if the voltage difference of battery cell is within 0.1V after charging fully and leaving it for 6 hrs; 3. Check if battery is bulged; 4. Replace battery with leakage problems and damage in time; 5. Inspect if there is any dirt or damage or foreign matters on battery interface; clean them in time, if any.
Body detection through disassembly	1. Dismantle the body into modules and parts of the smallest unit; 2. Detect the surface of each part carefully to confirm if there is any abnormality; 3. Detect the functions of each module to determine if there is any function abnormality or hidden hazards; 4. Inspect the inside of body and wing visually and by

	instruments to confirm problems such as damage and rupture; 5. Repair defective parts and components in time; 6. Confirm potential hazard based on part wearing status, and remove and repair these problems.
Change of core parts	1. Change core parts with damage or whose service life expires discovered in detection;
Change of quick-worn parts	1. Change core parts with damage and quick-worn parts whose service life expires discovered in detection;
Troubleshooting	1. View historical aircraft faults, analyze the reason and treat existing safety hazard or abnormality; 2. Carry out test after aircraft recovery to remove historical faults.
Deep cleaning	1. Carry out deep cleaning such as dust removal, dirt removal, paint repair and derusting.

Special Inspection

Special inspection manly means disposing any problems in daily or regular inspection and maintenance, such as self-inspection abnormalities, as appropriate, after contacting after-sales technical support specialists according to APP prompt. Problems may be solved by factory repairing, where necessary. Type B or C inspection will be carried out based on severity of case or even Type D will be carried out if the case is very serious.

Verification after Accident

Refer to the process of <Flight Preparation Inspection> for the process of verification after accident.

Flight Log and Record

Aircraft File

Basic Information			
Aircraft model		Registration No.	
Date of production		Date of purchase	
Owner's Information			
Aircraft serial No.		Remote control serial No.	
Gimbal serial No.		Base station serial No.	
Battery serial No.		Battery serial No.	
Assembly Records			
No.	Parts	Assembled by	Quality Inspector
①	Body structure		
②	Flight controller		
③	Left wing		
④	Right wing		
⑤	Left wingtip		
⑥	Right wingtip		

⑦	Battery bin		
⑧	Tail wing		
⑨	Avionics device		
⑩	Base station		
11	Remote control		
12	Battery		
Remarks			

Inspection Log

<table>
<tr><td colspan="4">Checklist of “Dragonfish”</td></tr>
<tr><td>Inspection date</td><td></td><td colspan="2">Contents inspected</td></tr>
<tr><td>Accumulated flight hours</td><td rowspan="6"></td><td rowspan="6">☐ Body structure
☐ Battery
☐ Remote control system
☐ Communication link system
☐ Flight controller
☐ Sensor</td><td rowspan="6">☐ Power system
☐ Gimbal
☐ Base station system
☐ Accessories and tools
☐ Navigation system
☐ UAV system</td></tr>
<tr><td>Inspection type</td></tr>
<tr><td>Inspectors</td></tr>
<tr><td>Reviewing officer</td></tr>
<tr><td></td></tr>
<tr><td></td></tr>
<tr><td colspan="4">Remarks</td></tr>
<tr><td colspan="4"></td></tr>
</table>

Maintenance Log

<table>
<tr><td colspan="4">Checklist of “Dragonfish”</td></tr>
<tr><td>Maintenance date</td><td></td><td colspan="2">Contents maintained</td></tr>
<tr><td>Accumulated flight hours</td><td rowspan="6"></td><td rowspan="6">☐ Body structure
☐ Battery
☐ Remote control system
☐ Communication link system
☐ Flight controller
☐ Sensor</td><td rowspan="6">☐ Power system
☐ Gimbal
☐ Base station system
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<tr><td colspan="4">Remarks</td></tr>
<tr><td colspan="4"></td></tr>
</table>

Hardware Change Record

Record of “Dragonfish” Hardware Change				
No.	Date of Change	Part	Cause of Change	Changed by

Record of Software Status and Upgrading

Record of “Dragonfish” Software Upgrading				
No.	Date of Upgrading	Module	Ver. No. Prior to Upgrading	Upgraded by

After-sales Services

Policies about After-sales Services

For details about warranty period and policies of the product, please log in https://www.autelrobotics.com/page/policy.html

Flight Accident Treatment and UAV Maintenance

Disposal of aircraft loss

1. Once the aircraft is lost, please contact our after-sales engineer within the shortest time possible and state the details;
2. View flight record via APP and search for the aircraft lost within certain range of the position where connection fails based on accident site or based on the engineer's suggestions;
3. Upload flight record, and provide it together with other data required by after-sales engineer to the engineer for accident analysis;
4. The after-sales engineer will bring forth a solution after accident analysis.

Disposal of Aircraft Impact and Crash

Ensure personal and property safety in any of the following operations.

1. Upon occurrence of aircraft impact and crash, record accident details as many as possible using videos and photos first, including the general situation and damage of aircraft as well as site and task environment;
2. Separate aircraft and battery after ensuring aircraft has been powered off, and store battery using explosion-proof isolation box;
3. Upload flight record, and provide it together with other data required by after-sales engineer to the engineer for accident analysis;
4. Mail the aircraft and battery to designated outlet for repairing or scrapping;
5. The after-sales engineer will bring forth a solution after accident analysis.

Loss Assessment of Accident

Where the loss of your Autel Robotics products falls into the scope of warranty, please feel free to dial (844) 460-0454 or send an email to enterprise@autelrobotics.com for repairing and consultation, and then send your damaged Autel Robotics to our official outlet designated so that our professional after-sales engineer will make assessment as appropriate.

Maintenance

Maintenance after accident will be carried out according to the maintenance principle and process of special inspection, except for scrapping.

Verification after Accident

Refer to the process of <Flight Preparation Inspection>.

Mailing Channels

Please feel free to contact dealers or dial our after-sales service hotline (844) 460-0454 or send an email to enterprise@autelrobotics.com