

Thank you

Thank you for selecting the Hornet 460 from Dualsky! This kit is designed to be fun to fly and uses top quality parts for durability and performance. This instruction manual you are reading was designed to be easy to follow, yet thorough in its explanations. Dualsky wants you to enjoy the performance and experience of using our products. If you have come across any problems or require further assistance, contact us or one of our international distributors and we will do our very best to help you. You can also contact us on the internet at www.dualsky.com

• This is a high performance R/C kit, and it requires regular maintenance for best performance. If you don't do regular maintenance the performance will suffer. Dualsky has all the necessary parts and accessories available to keep your aircraft performing at its best.

The caution or attention symbols will warn you about steps that can be very dangerous. Please read and understand the instructions carefully before proceeding.



Failure to follow these instructions can damage your kit, and cause serious bodily injury or death.



Failure to follow these instructions can cause injury to yourself or others. You might also cause property damage or damage your kit.



Before Flying

- · Please read manual with parent or guardian (responsible adult).
- Turn ON transmitter first, and then turn ON the receiver. This will prevent the aircraft from losing control.

Before Operating

- · Make sure that all screws and nuts are properly tightened.
- Always use fully charged batteries in your transmitter and receiver to avoid losing control of the model.
- · Make sure no one else is using the same radio frequency that you are using.
- · Please confirm the range of the radio operation.

During Flying

- · Please do not fly in a public area, this could cause serious accidents, personal injuries and/or property damage.
- Please do not fly near pedestrians or small children.
- Please do not fly in small and confined areas.

After Flying

· Turn OFF receiver first, then turn OFF transmitter. This will prevent the aircraft from losing control.

Battery Safety

• Please be careful when handling the battery. It could be hot after running. As part of a regular maintenance routine, be sure to check all wiring including battery wire and terminals.

感谢您

感谢您选择双天的Hornet 460! 这款套件力求让您体验到飞行的乐趣,在设计时我们选用顶级材料与配件以保证最佳的可靠性和飞行表现。您正在阅读的这份使用说明力求通过简单易懂的描述让您对本产品有一个全面细致的了解。我们希望您能够喜欢我们的产品。如果您在使用过程中遇到问题,或者需要一些帮助来完成某一步骤,请您致电我们公司,我们会竭诚为您服务。您也可以通过我们公司的网站(www. dual sky. com)来联系我们。

·这是一款高性能的遥控模型套件,它需要一定的常规维护来使其保持在最佳状态。如果您不进行常规维护,那么产品的性能将会受到影响。双天公司提供完备的产品配件及附属装备来保证您的飞行器始终工作在最佳状态下。

警告及注意事项符号将会提醒您哪些安装或使用步骤会变得十分危险。 请在操作前仔细阅读并完全理解这些说明。



未能按照说明操作将会损坏您的套件, 并会造成严重的身体伤害甚至死亡。



未能按照说明操作将会伤害到您或他人。 您也有可能会造成财产损失或损坏到您 <u>的套件。</u>



在飞行前

- ·请与父母或监护人(能够负责任的成年人)一起阅读本"使用说明"。
- · 先打开遥控器的开关,再打开接收机的开关。这可以防止飞行器失控。

在操作前

- ·确保所有螺丝和螺帽都已经正确锁紧。
- · 总是在遥控器和接收机中使用全新的或完全充电的电池以防止模型失控。
- ·确保没有人和您使用相同的遥控频率。
- ·请确认遥控距离在遥控器的可操作范围之内。

在飞行中

- ·请不要在公共场合飞行,这可能会引起严重的意外事故、人身伤害及财产损失。
- ·请不要在行人或儿童附近飞行。
- ·请不要在狭小受限的环境中飞行。

在飞行后

· 先关闭接收机的开关, 再关闭遥控器的开关。这可以防止飞行器失控。

电池安全

·请小心使用电池。它在飞行之后会变得很热。如果电池组的接线受到磨损,有可能会短路, 进而引发火灾。作为日常维护工作的一部分,请确保检查电池接线和插头。

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^{*} Visit our website at Dualsky.com to view our updated instruction manual.

^{*} 请访问我们的网站 www. dualsky. com 以获取最新说明书

Equipment Needed

Electronics 电子设备

The Hornet 460 requires the following items to complete: at minimum a 4-channel radio system (we recommend a 6-channel or higher radio system), Lithium Polymer (LiPo) battery pack (recommend Dualsky 1700-5000mAh 11.1V) and battery charger.

您需要准备一套4通道(或以上的)遥控设备、锂电池组和电池充电器。

Transmitter 发射机



Receiver 接收机

Receiver







*Dualsky 1700-5000mAh Recommended



Battery Charger



If you do not use a charger designed to charge Nickel Metal Hydride / LiPo batteries, the batteries will be damaged. 如果您使用的电池充电器不是专为镍氢和锂电池所设计的,那电池将会被损坏。

Tools 工具

Tools needed for assembly. Sold Separately. 组装所需的工具。需要单独购买。

Allen Wrench (1.5) 内六角螺丝刀

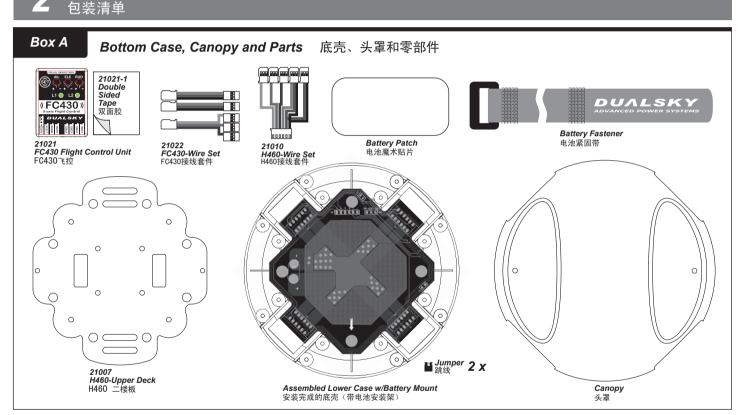


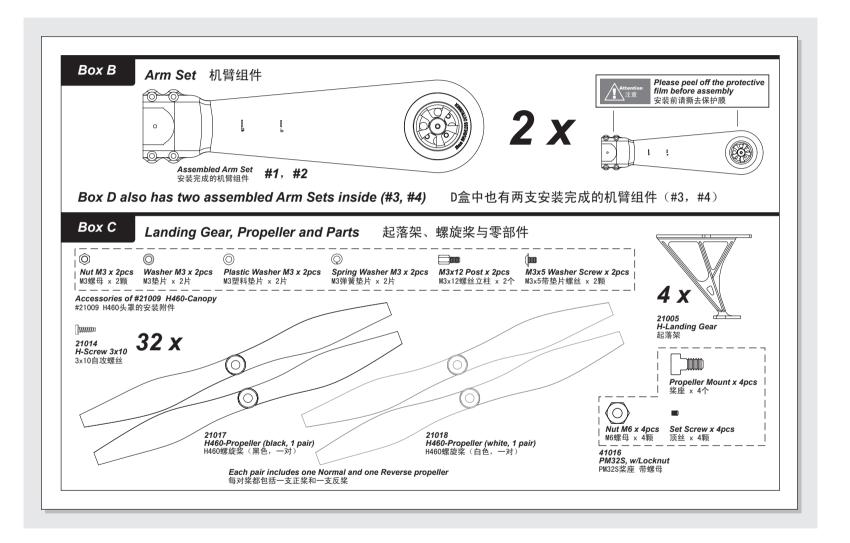
Philips Head Screwdriver 十字螺丝刀

M6 Wrench M6扳手

M3 Wrench M3扳手

2 Packing List 包装清单





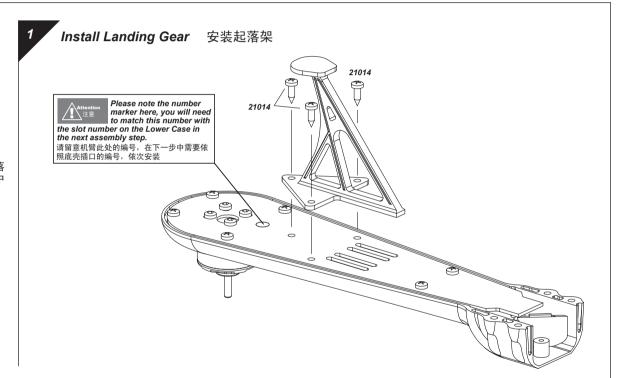
3 Assembly Instruction 安装指南

Repeat Steps

重复 步骤

Repeat this step to install Landing Gear to Arm Sets in Box B and D

重复此步骤,将起落 架安装到B盒和D盒中 的机臂上

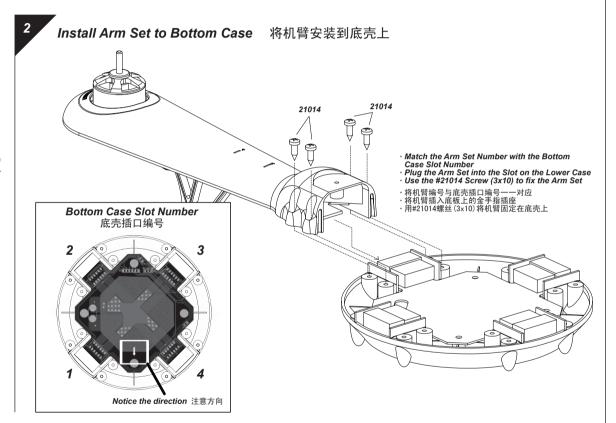


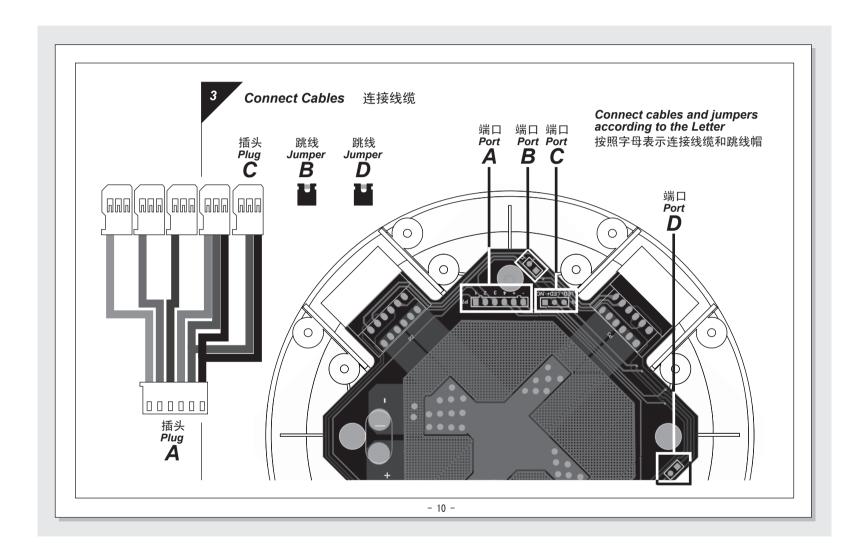
Repeat Steps

重复 步骤

Repeat this step to install Arm Sets to four directions of the Lower Case

重复此步骤,将机臂 安装到底壳的四个方 向上

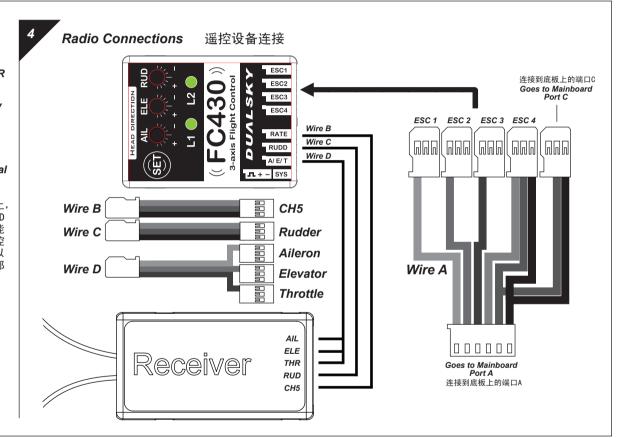


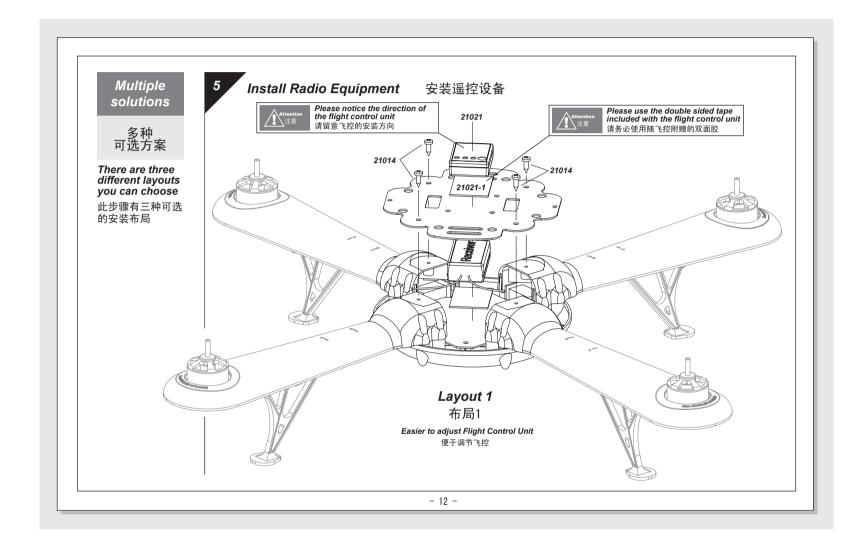




The AIL, ELE, THR and RUD port sequence on the receiver may vary between brands (refer: Page 16). Please refer to your radio manufacturer's instruction manual for correct installation.

不同厂商的接收机上, AIL,ELE,THR和RUD 接口的排列顺序可能 会不同。请参考遥控 设备厂商的说明书以 保证正确地连接各部 件。





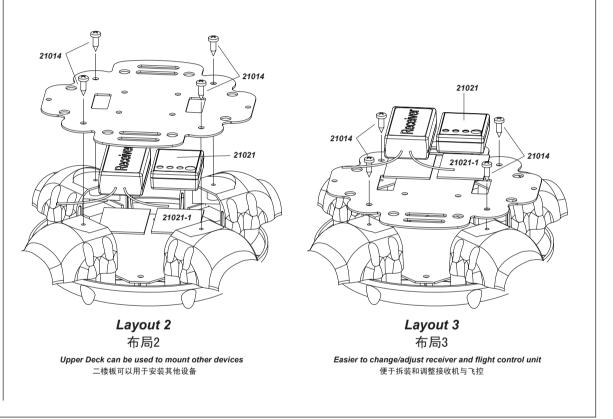


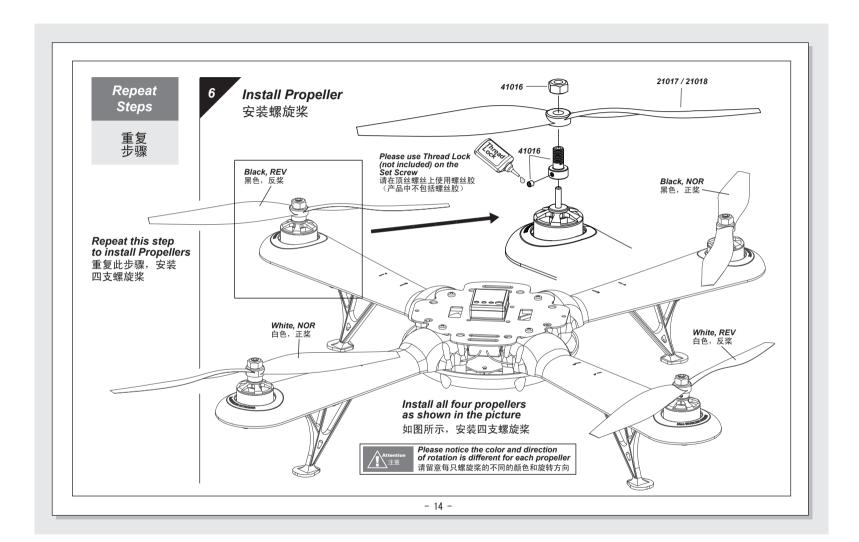
Please notice the direction of the flight control unit

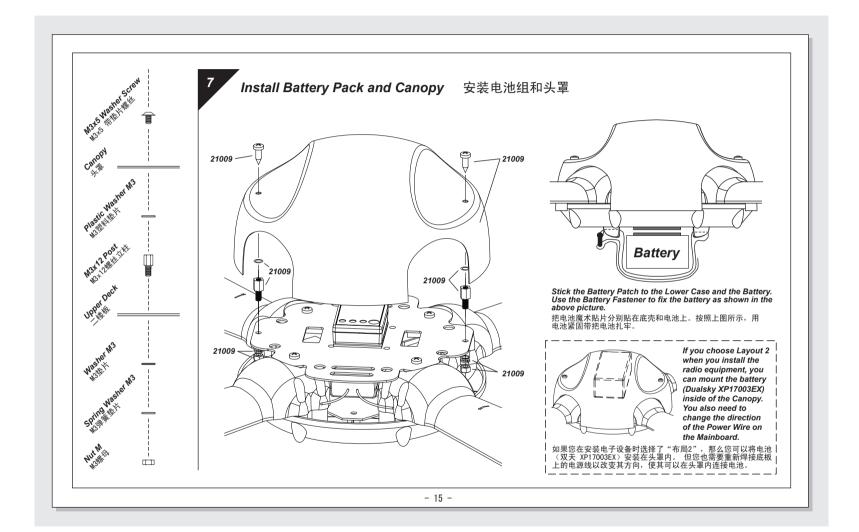
请留意飞控的安装 方向



Please use the double sided tape included with the flight control unit 请务必使用随飞控附赠的双面胶









Configuration 设定与调试

Transmitter Setting 遥控器设置

- · The Hornet 460 needs a 4-channel or higher radio controller to operate:
- If you are using a 5-channel or higher radio controller, please connect the CH5 to 3-position or 2-positon switch channel, and set the switch to Min. This channel is used to adjust the sensitivity of sticks. If you are using a 4-channel radio, you can adjust the sensitivity on the FC430;
- Set the radio to "Airplane Mode", turn off all the mixing functions, set all channel's D/R to 100%:
- · Set all channel's trim, sub-trim and mechanical trim to "0";
- · Set all channel's direction according to the below chart.

双天H460四旋翼需要一台四通道或以上的遥控设备;

如果您使用五通道或以上的遥控器,请将 CH5 连接至三段或两段开关通道,并将该 开关拨至最小。该通道用来调节飞行过程中操纵杆的灵敏度。如果使用四通道遥控器, 操纵杆灵敏度可在飞控中设定;

设定遥控器为固定翼模式,如果遥控器有混控功能,请关闭所有混控,将各通道行程都设为100%:

各通道的电子微调(TRIM或SUBTRIM菜单)和摇杆的机械微调都归"0":

• 如下图所示,根据品牌设定遥控器各通道正反向。

	Futaba	JR	Spektrum	нотт
AIL	NOR	REV	REV	REV
ELE	REV	NOR	NOR	NOR
THR	REV	NOR	NOR	NOR
RUD	NOR	REV	REV	REV
D/R SW	NOR	REV	NOR	REV

ESC Initial Setting 电调行程设定

- · Turn on the radio controller, push the throttle stick to the top, turn on power to the Hornet 460, when L1 shows blue in color, it means the ESC is in initial setting mode:
- · Wait until the ESC's long beep (it means the top point of throttle has been confirmed), then pull the throttle stick to lowest point;
- Wait about 1 second for a short beep (it means the lowest point of throttle has also been confirmed), the ESC initial setting is finished;
- Don't move the throttle stick after initial setting, turn the power off to the Hornet 460, then reconnect the power after 5 seconds, the new setting will be applied.

开启遥控器,将油门推至最高,接通四旋翼飞行器的电源,L1蓝灯亮时,即进入电调行程设定模式;

等待电调发出"滴"声(长声),表明油门最高点已经确认,此时应立即将油门收至 最低:

等待约1秒,电调再次发出"滴"声(短声,约0.2秒),表明油门最低点确认,即完成电调行程设定。电调设定完成后请勿推高油门(为确保安全,建议断开电源后重新接通)。

Flight Control Setting 飞控设置



ALL SETTINGS ARE OPTIMIZED TO FIT HORNET 460, DON'T CHANGE THEM UNLESS IT'S NECESSARY.

设定项目根据双天H460已做最优化处理,如非特殊情况无需设定。

How to enter Setting Mode: Turn on radio controller, move the throttle to lowest position; turn on power to the Hornet 460, wait until the L1 LED finishes flashing Green and then changes to RED (Now the flight control is in Lock Mode); press the "SET" button on the flight control to enter Setting Mode. After you enter Setting Mode, L1 displays the corresponding SETTING ITEM menu attributes (color), and L2 displays the corresponding SETTING VALUE menu attribute (color).

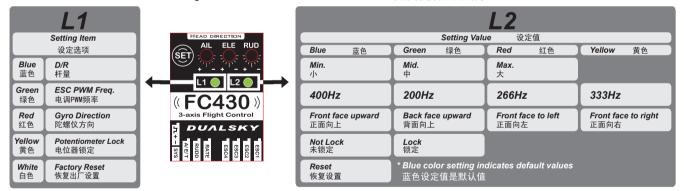
- "SET" Button usage:
- 1) Long Press (more than 2 sec) under Lock Mode: enter Setting Mode
- 2) Single Click under Setting Mode: switch between SETTING ITEM
- 3) Double Click (finish within 0.5 sec) under Setting Mode: change SETTING VALUE
- 4) Long Press (more than 2 sec) under Setting Mode: Save and Quit to Lock Mode
- Please check the below chart for all settings.

如何进入设定模式: 打开遥控器,油门收至最低,接通四旋翼飞行器的电源,等待飞控L1绿灯闪烁结束红灯常亮(此时为锁定状态)后,长按飞控上的"SET"按钮进入设定模式。此时,L1的颜色指示设定项目,L2的颜色指示该设定项当前设定值。

按键操作说明:

- 1. 锁定状态下长按(大于两秒): 进入设定模式
- 2. 设定状态下单击: 改变设定项
- 3. 设定状态下双击(双击有效间隔小于0.5秒): 改变该项设定值
- 4. 设定状态下长按: 保存并退出

具体设定项如下表所示



· Some settings will take effect after the Hornet 460 is restarted. Cut the power to the Hornet 460 and reconnect after 5 seconds to apply the new settings.

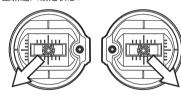
部分设定需重启飞控后才能生效,因此在飞控设定完成后,请断开四旋翼飞行器的电源,稍等5秒钟再重新接通电源以应用新的设定值。

5 Test Flight

Unlock 解锁

- · Make sure the Hornet 460's battery is fully charged, and you are in a wide, flat area;
- Turn on the radio, pull the throttle stick to lowest position, plug in the power to the Hornet 460. L1 LED on FC430 Flight Control will flash Green (initial startup process), don't move sticks on the radio controller, keep the Hornet 460 still. When the L1 LED changes to Red, it means the initial startup process has finished and the Hornet 460 is now in Lock Mode (throttle will not operate). Move the sticks as shown in the picture (right) and hold for about 0.5 sec to unlock the Hornet 460. After unlock, motors will reach idle speed for about 1 sec. If you don't do any stick movements during this period after "unlock" (5-seconds) the Hornet 460 will return to Lock Mode again.

确保Hornet 460的动力电池电量充足,飞行器四周没有障碍物: 打开遥控器,油门收至最低,接通Hornet 460的电源。飞控上的L1绿灯闪烁时为飞 控初始化过程,此过程中请勿拨动操纵杆,并保持飞行器静止。L1绿灯闪烁结束红 灯常亮后即进入锁定状态,此时推油门无效。执行下图中的拨杆动作并保持约0.5秒 即可解锁,解锁后电机保持怠速约一秒。解锁后五秒内如不将油门推高或执行拨杆 动作,飞控将会重新进入锁定状态。



* This movement is the same for both Mode I and Mode II transmitters to "unlock" the Hornet 460
*模式1和模式2的用户都可以使用这个动作来解锁

Ground Test 地面测试

- · Put the 3-position switch to low, set all sensitivity potentiometers on FC430 Flight Control Unit to neutral;
- After unlock, push the throttle a fraction above idle speed, check if the propellers run in correct directions;
- Direction check: Controlling the throttle, make sure the Hornet 460 doesn't leave the ground. Slightly move each stick to observe if the Hornet 460 moves with your stick input direction. If the direction is opposite, please change the channel direction. If the stick returns to neutral point and the Hornet 460 remains in a "tilted" position, it means the flight control is working properly.

三段开关通道拨至最小,飞控上的感度电位器都旋至中间 解锁后将油门推至略高于怠速,查看螺旋桨旋转方向是否正确; 控制油门,保证飞行器不要离开地面,依次轻微拨动各通道操纵杆,观察飞行器在地 面的倾斜状态与操纵杆的方向是否一致,如不一致,请更改相应通道的正反;在操纵 杆回中后飞行器如果能保持倾斜状态,表明飞控工作正常。

Low Altitude Test Flight 低高度试飞

After unlock, push the throttle to let the Hornet 460 hover about 0.5m off the ground. Check if the unit is stable, if it's not, you can adjust the sensitivity for improved flight performance.

解锁后推油门至飞行器离地约半米,查看飞行是否稳定,如不稳定,需对飞控进行感度调节:

Adjust the sensitivity 调节感度

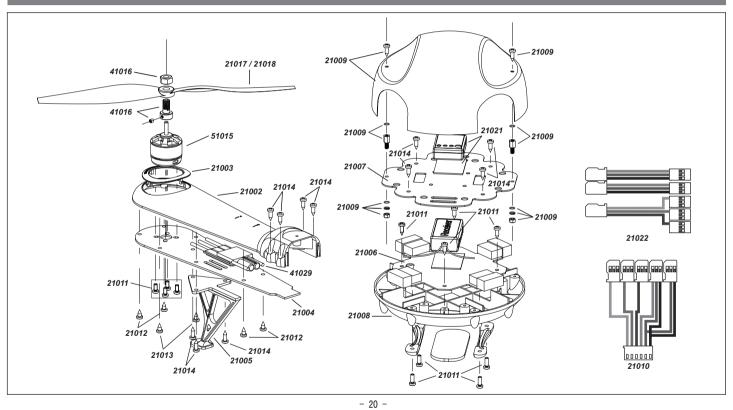
- The weight on the Hornet 460 can differ depending on the choice of battery. This will impact center of gravity, and the flight characteristics. To improve flight performance you can address the below.
- Normally, if the sensitivity is set too high on the "pitch" (elevator) axis, the opposing axis (i.e., aileron) will vibrate; if the sensitivity is set too low on the "pitch" (elevator) axis, the opposing axis (i.e., aileron) will respond with delay to stick movement.
- If the sensitivity is set too high on the rudder axis it will cause the motors to over react, which will make the Hornet 460 unstable in pitch and yaw direction; if the sensitivity is set too low on the rudder axis, the Hornet 460 will have difficulty on tail lock.
- When adjusting the sensitivity don't change the setting too much, 5-10 degrees is enough. When you find a stable range, then tweak it for optimum performance.

不同的四旋翼飞行器因为重量、重心、马达和螺旋浆的不同会导致感度也不同。 一般俯仰轴和横滚轴的感度过大会导致在该轴上的震荡;感度过低会导致在该轴上 的动作偏软,突然打杆时飞行器停止不干脆、难以控制。

航向轴的感度过大会导致电机的加减速过于激烈,导致其他方向上的不稳定;过低则对航向的锁定有影响,打杆时飞行器停止不干脆;

每次感度调节请勿过大,每次旋转电位器5-10度即可,基本稳定后可继续进行细微调节。

Exploded View 产品爆炸图



7 Parts List 配件清单

No.	Description	配件编号	品名
21002	H-Arm, 2pcs, without rings	21002	机臂 2件装(不带适配环)
21003	H-Arm ring, 2 pcs	21003	机臂适配环 2件装
21004	H-Arm board, 2pcs	21004	机臂电路板 2件装
21005	H-Landing gear, 2 pcs	21005	起落架 2件装
21006	H460-Mainboard, with plugs	21006	H460主板 (帯插头)
21007	H460-Upper deck	21007	H460二楼板
21008	H460-Lower case, w/ battery mount	21008	H460底壳(带电池架)
21009	H460-Canopy, w/ screw set	21009	H460头罩(带固定螺丝套件)
21010	H460-Wire set	21010	H460接线套件
21011	H-Hex screw 3x6, 20pcs	21011	内六角螺丝 3x6 20颗装
21012	H-Screw 3x6, 20pcs	21012	十字螺丝 3x6 20颗装
21013	H-Screw 3x8, 20pcs	21013	十字螺丝 3x8 20颗装
21014	H-Screw 3x10, 20pcs	21014	十字螺丝 3x10 20颗装
51015	XM2830CA-Hornet, 830RPM/V	51015	XM2830CA-Hornet专用无刷马达(830RPM/V)
41016	PM32S, w/ locknut	41016	PM32S桨座(带螺母)
41029	XC-22-MR, 22 amps ESC	41029	XC-22-MR四旋翼专用电调(22A)
21017	H460-Propeller 9", Black, 1 pair	21017	H460螺旋桨 (9″ 黑色 一对装)
21018	H460-Propeller 9", White, 1 pair	21018	H460螺旋桨(9″白色 一对装)
21021	FC430 Flight Control Unit for Quad Rotor	21021	FC430四旋翼专用飞控
21022	FC430-Wire set	21022	FC430接线套件

8 Optional Parts List 选装配件清单



21022 - H460-Tail Set, 1 pair 尾翼套件 一对



21041 - H-LED, Green, Large, 10 pcs 绿色LED 大号 十颗装



21042 - H-LED, Red, Large, 10 pcs 红色LED 大号 十颗装



21019 - H460-Propeller 10", Black, 1 pair 10寸螺旋桨 黑色 一对装



21020 - H460-Propeller 10", White, 1 pair 10寸螺旋桨 白色 一对装



21023 - FC430-Wire Set L FC430接线套件 长型



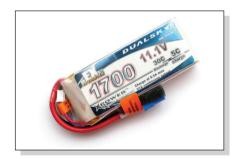
21026 - H460-Camera Mount 相机架



21027 - H460-Camera Mount Pro 专业版相机架



21028 - Damping Ball Set, 10 pcs/bag 避震球 十颗装



31024 - XP17003EX 3S 1700mAh, Light Weight 轻量化锂电池



31025 - XP46003HED Light Weight & Durable 耐久性轻量化锂电池

For more Optional Parts information, please visit our website

更多选装配件信息请访问我们的网站



www.Dualsky.com

Hornet 460

The Innovative Quadcopter



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