

TREX 600E PRO DFC

INSTRUCTION MANUAL

使用說明書

RH60E10XT

ALIGN



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Thank you for buying ALIGN products. The T-REX 600E PRO DFC is the latest technology in Rotary RC models. Please read this manual carefully before assembling and flying the new T-REX 600E PRO DFC helicopter. We recommend that you keep this manual for future reference regarding tuning and maintenance.

承蒙閣下選用亞拓遙控世界系列產品，謹表謝意。進入遙控世界之前必須告訴您許多相關的知識與注意事項，以確保您能夠在學習的過程中較得心應手。在開始操作之前，請務必詳閱本說明書，相信一定能夠給您帶來相當大的幫助，也請您妥善保管這本說明書，以作為日後參考。

Thank you for buying ALIGN Products. The T-REX 600E PRO DFC Helicopter is designed as an easy to use, full featured Helicopter R/C model capable of all forms of rotary flight. Please read the manual carefully before assembling the model, and follow all precautions and recommendations located within the manual. Be sure to retain the manual for future reference, routine maintenance, and tuning. The T-REX 600E PRO DFC is a new product developed by ALIGN. It features the best design available on the R/C helicopters market to date, providing flying stability for beginners, full aerobic capability for advanced fliers, and unsurpassed reliability for customer support.

感謝您選購空拓產品。為了讓您容易方便的使用 T-REX 600E PRO DFC 直昇機，請您詳細的閱讀完本說明書之後再進行組裝以及操作這台直昇機。同時請您妥善的保存這本說明書，作為日後進行調整以及維修的參考。T-REX 600E PRO DFC 是由亞拓自行研發的最新產品，不論是需求飛行穩定性的初學者或是追求性能的飛行愛好者，T-REX 600E PRO DFC 將是您最佳的选择。

WARNING LABEL LEGEND 標誌代表涵義

| | |
|--|--|
|  | Do not attempt under any circumstances. 在任何禁止的環境下，請勿嘗試操作。 |
|  | Mishandling due to failure to follow these instructions may result in damage or injury. 因為疏忽這些操作說明，而使用錯誤可能造成財產損失或嚴重傷害。 |
|  | Mishandling due to failure to follow these instructions may result in danger. 因為疏忽這些操作說明，而使用錯誤可能造成危險。 |

IMPORTANT NOTES 重要聲明

R/C helicopters, including the T-REX 600E PRO DFC are not toys. R/C helicopter utilize various high-tech products and technologies to provide superior performance. Improper use of this product can result in serious injury or even death. Please read this manual carefully before using and make sure to be conscious of your own personal safety and the safety of others and your environment when operating all ALIGN products. Manufacturer and seller assume no liability for the operation or the use of this product. This product is intended for use only by adults with experience flying remote control helicopters at a legal flying field. After the sale of this product we cannot maintain any control over its operation or usage.

As the user of this product, you are solely responsible for operating it in a manner that does not endanger yourself and others or result in damage to the product or the property of others.

T-REX 600E PRO DFC 遙控直昇機並非玩具，它結合了許多高科技產品所設計出來的休閒用品，所以商品的使用不當或不熟悉都可能造成嚴重傷害甚至死亡。使用之前請務必詳讀本說明書，並輕及注意自身安全。注意！任何遙控直昇機的使用，製造商和經銷商無法對使用者於零件使用的損耗異常或損壞不潔所發生之意外負任何責任。本產品提供給有操作過模型直昇機經驗的人員或有指導於當地合法遙控飛行場飛行，以確保安全無虞下操作使用。產品售出後本公司將不負責任操作和使用的風險，對於任何性能或安全責任。

作為本產品的使用者，您，是單一對於您自己操作的環境及行為負全部的責任之人。

We recommend that you obtain the assistance of an experienced pilot before attempting to fly our products for the first time.

A local expert is the best way to properly assemble, setup, and fly your model for the first time. The T-REX 600E PRO DFC

Requires a certain degree of skill to operate, and is a consumer item. Any damage or dissatisfaction as a result of accidents or modifications are not covered by any warranty and cannot be returned for repair or replacement. Please contact our distributors for free technical Consultation and parts at discounted rates when you experience problems during operation or maintenance. As Align Corporation Limited has no control over use, setup, final assembly, modification or misuse, no liability shall be assumed nor accepted for any resulting damage or injury. By the act of use, setup or assembly, the user accepts all resulting liability.

模型商品屬於高操作技術且為消耗性之商品。如經拆裝使用後，會造成不等情況零件損耗，任何使用情況所造成商品不良或不滿意，將無法於保固條件內更換零件或退貨。如若有使用操作維修問題，本公司各分公司或代理商將提供技術指導，特價零件供應服務。對使用者的不當使用、設定、組裝、修改、或操作不良所造成之損壞或傷害，本公司無法控制及負責。任何使用、設定、組裝、修改、或操作不良所造成之損壞、意外或傷害，使用者應承擔全部責任。

2. SAFETY NOTES 安全注意事項



· Fly only in safe areas, away from other people. Do not operate R/C aircraft within the vicinity of homes or crowds of people. R/C aircraft are prone to accidents, failures, and crashes due to a variety of reasons including, lack of maintenance, pilot error, and radio interference. Pilots are responsible for their actions and damage or injury occurring during the operation or as a result of R/C aircraft models.

· Prior to every flight, carefully check rotorhead spindle shaft screws and tail blade grip screws, linkage balls and screws, ensure they are firmly secured.

· 遙控模型飛機、直昇機屬高危險性商品，飛行時務必遠離人群，人為組裝不當或操作不慎、電子控制設備不良，以及操作上的不熟悉，都有可能導致飛行失控損傷等不可預期的意外，請飛行者務必注意飛行安全，並需了解自負此項用途任何意外之責任。

· 每趟飛行前請仔細檢查，主旋翼夾座螺絲、尾旋翼夾座螺絲，以及機身各部位球頭、螺絲，確實上鎖緊才能升空飛行。

**LOCATE AN APPROPRIATE LOCATION 遠離障礙物及人群**

R/C helicopters fly at high speed, thus posing a certain degree of potential danger. Choose a legal flying field consisting of flat, smooth ground without obstacles. Do not fly near buildings, high voltage cables, or trees to ensure the safety of yourself, others and your model. For the first practice, please choose a legal flying field. Do not fly your model in inclement weather, such as rain, wind, snow or darkness.

真昇飛機飛行具有一定的速度，相對的也潛在著危險性，場地的選擇也相對的重要。請遵守當地法規對合法高空飛行場地飛行。務必選擇在空曠合法場所飛行場地。務必注意周圍是否有別人、高樓、建築物、高壓電線、樹木等等。避免失控的不當造成自己與他人財產的損壞。

請勿在下雨、打雷等惡劣天氣下操作，以確保本身及機體的安全。

**NOTE ON LITHIUM POLYMER BATTERIES 鋰聚電池注意事項**

Lithium Polymer batteries are significantly more volatile than alkaline or Ni-Cd/Ni-MH batteries used in RC applications. All manufacturer's instructions and warnings must be followed closely. Mishandling of Li-Po batteries can result in fire. Always follow the manufacturer's instructions when disposing of Lithium Polymer Batteries.

鋰聚電池與一般用在RC使用的鹼性電池、鎳鎘電池、鎳氫電池比較起來是相對危險的。請嚴格遵守鋰聚電池說明書之使用注意事項。不恰當使用鋰聚電池，可能造成火災並危及生命財產安全，切勿大意！

**PREVENT MOISTURE 遠離潮濕環境**

R/C models are composed of many precision electrical components. It is critical to keep the model and associated equipment away from moisture and other contaminants. The introduction or exposure to water or moisture in any form can cause the model to malfunction resulting in loss of use, or a crash. Do not operate or expose to rain or moisture.

真昇機內部也是由許多精密的電子零件組成，所以必須絕對的防止潮濕或水氣。避免在浴室或雨天時使用，防止水氣滲入機身內部導致機件及電子零件故障而引發不可預期的意外！

**PROPER OPERATION 勿不當使用本產品**

Please use the replacement of parts on the manual to ensure the safety of instructors. This product is for R/C model, so do not use for other purpose.

請勿自行改造添加，任何的升級改造或維修，請依照原廠產品目錄中的零件，以確保結構的安全。請謹防產品誤用內操作，請勿過載使用，勿用於安全、法等外其它非用途。

**OBTAIN THE ASSISTANCE OF AN EXPERIENCED PILOT 避免獨自操控**

Before turning on your model and transmitter, check to make sure no one else is operating on the same frequency. Frequency interference can cause your model, or other models to crash. The guidance provided by an experienced pilot will be invaluable for the assembly, tuning, trimming, and actual first flight or unforeseen danger may happen. (Recommend you to practice with computer-based flight simulator.)

在飛行場飛行前，需確認是否有相同頻率的機正在進行飛行，因為頻數相同頻率的發射器將導致自己與他人引起干擾等意外為期。應仔細閱讀說明書中學習初期需有一定經驗，要盡量避免獨自操作飛行。曾有經驗的人士在旁指導，才可以啟動飛行，否則將可能造成不可預期的意外發生。(建議電腦模擬器及老手指導是入門必妥的選擇)

**SAFE OPERATION 安全操作**

Operate this unit within your ability. Do not fly under tired condition and improper operation may cause in danger. Never take your eyes off the model or leave it unattended while it is turned on. Immediately turn off the model and transmitter when you have landed the model.

請於自己能力內及需要一定技術範圍內操作這台真昇機，過於疲勞、精神不佳或不當操作，意外發生風險將可能提高。不可在視線範圍外飛行，飛過後也請馬上關掉引擎機和遙控器電源。

**ALWAYS BE AWARE OF THE ROTATING BLADES 遠離運轉中零件**

During the operation of the helicopter, the main rotor and tail rotor will be spinning at a high rate of speed. The blades are capable of inflicting serious bodily injury and damage to the environment. Be conscious of your actions, and careful to keep your face, eyes, hands, and loose clothing away from the blades. Always fly the model a safe distance from yourself and others, as well as surrounding objects.

真昇機主旋翼與尾旋翼運轉時會以高轉速下運行，在高轉速下的旋翼會造成自己與他人在身體上或環境上的嚴重損傷，請切關旋翼轉中的主旋翼與尾旋翼，並保持安全距離以避免造成危險及損壞。





**KEEP AWAY FROM HEAT 遠離熱源**

R/C models are made of various forms of plastic. Plastic is very susceptible to damage or deformation due to extreme heat and cold climate. Make sure not to store the model near any source of heat such as an oven, or heater. It is best to store the model indoors, in a climate-controlled, room temperature environment.










遙控飛機、真昇機多是以 PA 纖維或聚乙稀、電子元件為主要材料，因此要盡量遠離熱源、日曬，以免受高溫而變形甚至造成損壞的可能。



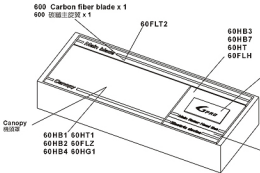
RADIO TRANSMITTER AND ELECTRONIC EQUIPMENT REQUIRED FOR ASSEMBLY 自備遙控及電子設備

| | |
|---|--|
|  <p>Transmitter (7-channel or more, helicopter system) 發射機(七或以上通開機式遙控機)</p> |  <p>Receiver(6-channel or more) 接收機(七或以上)</p> <p>OR 遙</p> <p>Remote receiver 衛星天線</p> |
|  <p>Li-Po Battery Charger RCC-6CX Li-Po電池充電器 RCC-6CX</p> |  <p>22.2V 6S 2600-4600mAh Li-Po Battery x 2 22.2v 6S 2600-4600mAh Li-Po電池 x 2</p> <p>Receiver battery 7.4V 2S 1900-2200mAh Li Po x 1 接收機電池 7.4V 2S 1900-2200mAh Li-Po x 1</p> |

ADDITIONAL TOOLS REQUIRED FOR ASSEMBLY 自備工具

| | | | | | |
|---|---|--|--|---|--|
|  <p>Swashplate Leveler 十字螺絲整器</p> |  <p>Digital Pitch Gauge 電子斜角規</p> |  <p>Multi-function Tester Voltmeter/Servo Diagnosis 多功能測試計 電壓/電壓/伺服機測試</p> | | | |
|  <p>Phillips Screw Driver 十字螺絲起子 φ3.0/φ1.8mm</p> |  <p>Cutter Knife 刀片</p> |  <p>Hexagon Screw Driver 六角螺絲起子 3mm/2.5mm/2mm/1.5mm</p> |  <p>Needle Nose Pliers 尖嘴鉗</p> |  <p>Oil 潤滑油</p> |  <p>CA 剋膠漆</p> |

4.PACKAGE ILLUSTRATION 包裝說明

| | |
|--|--|
|  <p>600 Carbon fiber blade x 1 600 碳纖維主翼 x 1</p> <p>60FLT2</p> <p>60HB3 60HB7 60HT 60FLH</p> <p>Gpro FLYBARLESS SYSTEM Gpro 無中置翼系統</p> <p>RCM-BL750MX (530KV) x 1 RCM-BL750MX 無刷馬達 x 1</p> <p>DS615 Digital Servo x 3 DS615 數位伺服器 x 3</p> <p>DS655 Digital Servo x 1 DS655 數位伺服器 x 1</p> <p>Castle Edge HV 80 ESC x 1 Castle Edge HV80 無刷調速器 x 1</p> <p>6A External BEC w/ 5.1V Two-way Step-down voltage regulator x 1 6A 外接式BEC(含5.1雙向降壓器) x 1</p> <p>Canopy 機殼罩</p> <p>60HB1 60HT1 60HB2 60FLZ 60HB4 60HG1</p> | |
|--|--|

CAREFULLY INSPECT BEFORE REAL FLIGHT 請嚴格執行飛行前之檢查義務

- Before flying, please check to make sure no one else is operating on the same frequency for the safety.
- Before flight, please check if the batteries of transmitter and receiver are enough for the flight.
- Before turn on the transmitter, please check if the throttle stick is in the lowest position. IDLE switch is OFF.
- When turn off the unit, please follow the power on/off procedure. Power ON- Please turn on the transmitter first, and then turn on receiver. Power OFF- Please turn off the receiver first and then turn off the transmitter. Improper procedure may cause out of control, so please to have this correct habit.
- Before operation, check every movement is smooth and directions are correct. Carefully inspect servos for interference and broken gear.
- Check for missing or loose screws and nuts. See if there is any cracked and incomplete assembly of parts. Carefully check main rotor blades and rotor holders. Broken and premature failures of parts possibly cause resulting in a dangerous situation.
- Check all ball links to avoid excess play and replace as needed. Failure to do so will result in poor flight stability.
- Check if the battery and power plug are fastened. Vibration and violent flight may cause the plug loose and result out of control.

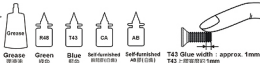
- 每次飛行前應先確認所使用的頻率是否會干擾他人，以確保您自身與他人的安全。
- 每次飛行前應先確認發射器與接收器電池的電量是在足夠飛行的狀態。
- 開機前應確認油门桿是否位於最低點，熄火開關關閉，定速開關(IDLE)是否於關閉位置。
- 開機時必須遵守電感開關機的程序，開機時應先開發射器後，再開啟接收器電源；關機時應先關閉接收器後，再關閉發射器電源。不正確的開關程序可能會造成失控的現象，影響自身與他人的安全，請養成正確的操作習慣。
- 開機前請先檢查主轉機之各個動作是否流暢，及方向是否正確，並檢查伺服器的動作是否有干涉或碰撞的情形，使用故障的伺服器將導致不可預期的危險。
- 飛行前應檢查是否有缺少或鬆動的螺絲與螺帽，確認沒有相裝不完整或損壞的零件，仔細檢查主旋翼是否有損壞，特別是接近主旋翼夾座的部位，損壞或相裝不完整的零件不僅影響飛行，更會造成不可預期的危險。注意：每次飛行前的安全檢查、保養、及更換損耗零件，請確實嚴格執行以確保安全。
- 檢查所有的連接頭是否有鬆脫的情形，適時的連接頭應予更新，否則可能造成主轉機無法操控的危險。
- 確認電池及電源線連接是否固定牢靠，飛行中的震動或過熱的飛行，可能造成電源線接觸鬆脫而造成失控的危險。

| STANDARD EQUIPMENT | | | | 標準配備 | | |
|--|---|---|---|--|--|---|
|  |  |  |  |  |  |  |
| 60HC2 | 60FLH | 60HB1 | 60HB2 | 60HB3 | 60HB4 | 60HB7 |
|  |  |  |  |  |  |  |
| 60HT | 60HTT | 60FLT2 | 60HG1 | 60FLZ | DS6FF Metal Servo Arm x 3 DS6FF 金屬伺服臂 x 3 DS616 Digital Servo x 1 DS615 數位伺服器 x 3 | DS665 Digital Servo x 1 DS655 數位伺服器 x 1 |
|  |  |  | |  |  | |
| M4x Set Screw x 2 M4x4 止咬螺絲 x 2 Motor pinion gear 14T x 1 馬達齒輪 14T x 1 | RCM-BL750MX Motor RCM-BL750MX 無刷馬達 (530KV) | Castle Edge HV 80 Brushless ESC Castle Edge HV 80 無刷馬達 | | 6A External BEC w/ 5.1V Two-way Step-down voltage regulator 6A 外插式 BEC (含 5.1 雙向電壓器) | 600 Carbon Fiber Blade 600 碳纖維主旋翼 | |

When you see the marks as below, please use glue or grease to ensure flying safety.

標有以下符號之組裝步驟，請配合上述塗油，以確保使用之可動度。

- CA : Apply CA Glue to fix.
- AB : Apply AB Glue to fix.
- R48 : Apply Anaerobics Retainer to fix.
- T43 : Apply Thread Lock to fix.
- OIL : Add Grease.
- CA : 使用瞬時膠固定
- AB : 使用 AB 膠固定
- R48 : 使用金屬鎖固固定螺絲固定
- T43 : 使用螺絲膠
- OIL : 添加潤滑油



R48 metal tubular adhesive (eg. Bearings). T43 thread lock, apply a small amount on screws or metal parts and wipe surplus off.

When disassembling, recommend to heat the metal joint about 15 Seconds. (NOTE: Keep plastic parts away from heat.)
R48 為強力金屬膠水(如軸承)。T43 為螺絲膠，膠合螺絲或金屬內外徑請務必少量使用，必要時請用手去除去多餘膠量，拆卸加時可於金屬接合部位加熱約 15 秒。(注意：塑膠件請先移開熱源)

When assembling ball links, make sure the "A" character faces out links.

各類型膠水連接預組裝時，A 字請朝外。

60FLH6



Bearing
軸承 (ø 8xø 14x4mm) x 4



Socket collar screw
鎖緊內六角鎖緊螺絲 (M5x6mm) x 4



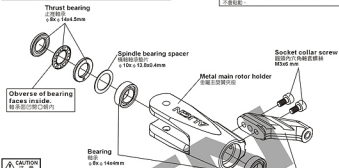
Thrust bearing
止推軸承 (ø 8xø 14x4.5mm) x 2



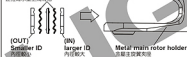
Spindle bearing spacer
傳動軸承墊片 (ø 10xø 13.8x0.4mm) x 2



Thrust bearing and washer for radial bearing are wear items, and thus should be inspected for replacement after every 20 flights. For flights with high headspeed, the inspection interval should be reduced to ensure flight safety.
止推軸承及傳動軸承屬於飛行消耗品，建議每20組定期檢查及更換，高主旋翼轉速飛行時，請縮短定期檢查之週數，以確保飛行安全。

**THRUST BEARING 止推軸承**

Apply grease on thrust bearing.
此種軸承塗上潤滑油



Apply a little amount of T43 thread lock when fixing a metal part.
螺絲鎖附於金屬件請使用潤滑劑 T43 螺絲膠



Already assembled by Factory. Before flying, please check if the screws are fixed with glue.
膠漿乾後完成品，每一次飛行前請先確認螺絲是否已上膠漿乾。

60FLH6



Feathering shaft sleeve
傳動夾握桿 (ø 8xø 10x21mm) x 1



DFC Damper
DFC 傳動夾握 (ø 8xø 12.9x4.5mm) x 2



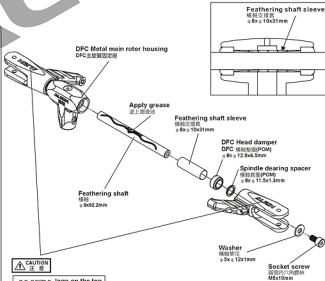
Spindle bearing spacer
傳動夾握 (ø 8xø 11.5x1.2mm) x 2



Socket screw
鎖緊內六角螺絲 (M5x10mm) x 2

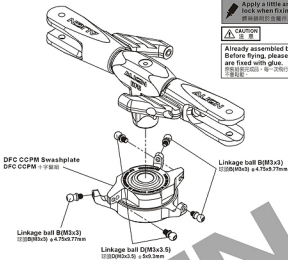


Washer
傳動螺絲 (ø 8xø 12x1mm) x 2



ALIGN logo on the top 字標朝上

60FLH5

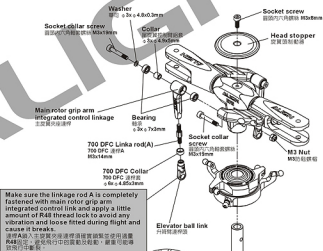
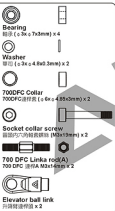


Apply a little amount of T43 thread lock when fixing a metal part.
 螺絲鎖附於金屬件請使用適量T43螺絲膠。

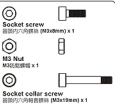
CAUTION
 注意

Already assembled by Factory.
 Before flying, please check if the screws are fixed with glue.
 零件經廠完成組裝，每一次飛行前請先檢查螺絲是否已上膠。

60FLH6

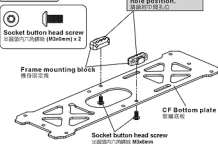


60FLH4A

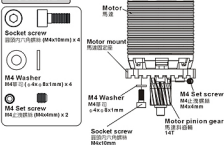


You may adjust the length of ball link when tracking is off while flight.
 若飛行中有變換情形，可適當調整連桿球長以改善。

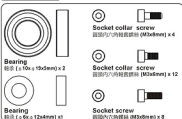
60HB3A



60HM2



60HB3



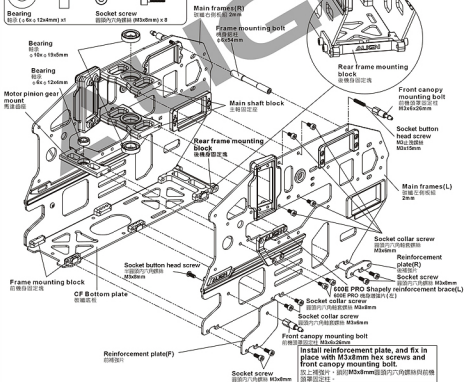
60HB4A



Apply a little amount of T43 thread lock when fixing a metal part.
鎖緊時於金屬零件鎖緊處塗薄層T43鎖緊劑。



Already assembled by Factory.
Before flying, please check if the screws are fixed with glue.
機架經廠家完成組裝，第一次飛行前請檢查機架螺絲是否已上膠。

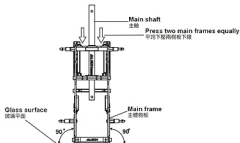


**Main frame assembly key point :**

First do not fully tighten the screws of main frames and put two bearings through the main shaft to check if the movements are smooth. The bottom bracket must be firmly touched the level table top (glass surface) ; please keep the smooth movements on main shaft and level bottom bracket, then slowly tighten the screws. This assembly can help for the power and flight performance.

機身側板組立重點：

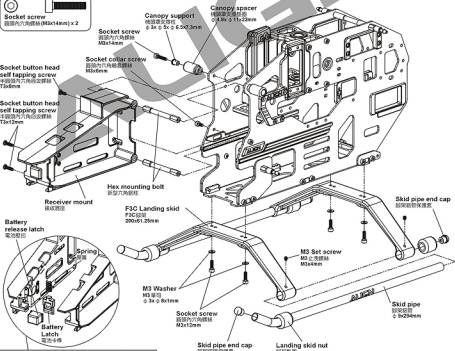
側板螺絲先不完全鎖緊，放入主軸貫穿二顆軸承確認上下移動必需滑順，主軸底部必須與水平桌面（玻璃平面）確實緊貼；請保持主軸滑順與底板平行桌面後慢慢鎖緊螺絲，正確側板的組裝對動力與飛行性能有顯著幫助。

**600NG1****60HB4****60HB3**

Apply a little amount of T43 thread lock when fixing a metal part.
螺絲鎖附於金屬件請使用適量T43螺絲膠。



Already assembled by Factory.
Before flying, please check if the screws are fixed with glue.
機身裝完完成後，每一次飛行前請先確認螺絲是否已上膠固定。

60HB4A

Battery release latch installation illustration
電池鬆扣安裝示意圖

60HZ3

Linkage ball A(M2x3.5)
连杆球A(M2x3.5) (ø 4.75x8.18mm) x 2



Socket button head self tapping screw
半圆螺母六角自攻螺钉(T2.6x12mm) x 4



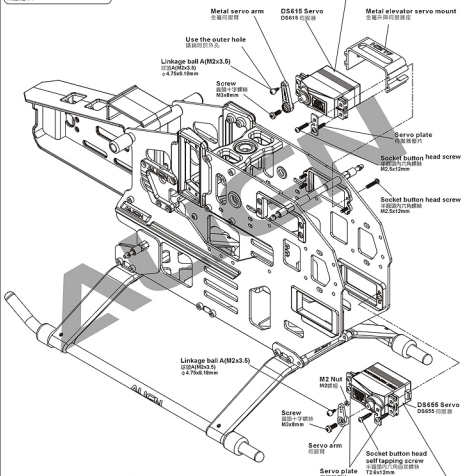
M2 Nut
M2螺母 x 1

60HB4

Socket button head screw
半圆螺母六角螺钉(M2.5x12mm) x 8

DS615 Digital Servo :

1. 1520 μ s standard band / 1520 μ s 宽脉冲系统
2. Stall torque / 输出扭力 : 10.4kg.cm (4.8V)
12.8kg.cm (6.0V)
3. Motion speed / 动作速度 : 0.09sec/60 (4.8V)
0.07sec/60 (6.0V)
4. Dimension / 尺寸 : 40.1 x 20.1 x 37.3mm
5. Weight / 重量 : 56g



Apply a little amount of T43 thread lock when fixing a metal part.
螺絲鎖附於金屬件請使用適量T43鎖絲膠



Already assembled by Factory.
Before flying, please check if the screws are fixed with glue.

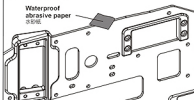
零件經工廠組裝，每次飛行前請先確認螺絲是否已膠合鎖死。

DS655 Digital Servo :

1. 1520 μ s standard band / 1520 μ s 宽脉冲系统
2. Stall torque / 输出扭力 : 4.5kg.cm (4.8V)
5.5kg.cm (6.0V)
3. Motion speed / 动作速度 : 0.06sec/60 (4.8V)
0.05sec/60 (6.0V)
4. Dimension / 尺寸 : 40.1 x 20.1 x 37.3mm
5. Weight / 重量 : 56g

Recommend sanding the marked position as below illustration with a waterproof abrasive paper (#800-1000) to avoid the wires of electric parts to be cut.

建議於下圖灰色標示處，使用#800-1000 水砂紙打磨，可防止電子設備線路被割傷。



60HB3



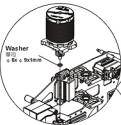
60HZ3



60HM2



Please make sure there is no interference when you install linkage ball A (M2X3) on the motor servo arm.

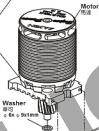


While assembling the motor mount, please make sure to properly loose M4 Set screw on 14T motor gear first, after fully fasten the motor mount with the motor pinion, then fasten back the M4 Set screw completely.

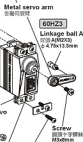
安裝馬達座時，請先將 14T 馬達齒輪上的 M4x4mm 止咬螺絲逆時旋轉放鬆，當馬達座完全和馬達齒輪固定鎖好後，再將馬達止咬螺絲鎖緊。



Make sure the motor mount is fully fastened before fasten the motor pinion gear mount. 先將馬達座完全安裝固定之後，再將馬達齒輪鎖緊。



Use the outer hole
請鎖於外孔。



Socket button head self tapping screw
平頭鍍鋅內六角自攻螺絲
T2.6x12mm

Socket collar screw
鍍鋅內六角細螺絲
M3x6mm

Apply a little amount of T43 thread lock when fixing a metal part.
鎖付螺絲於金屬件請使用適量T43(鎖付膠)



Already assembled by Factory. Before flying, please check if the screws are fixed with glue.
零件均經工廠組裝。飛前請檢查螺絲是否已上膠。

- DS615 Digital Servo :
1. 1520 μ s standard band / 1520 μ s 寬頻帶
 2. Stall torque / 輸出扭力 : 10.4kg.cm (4.8V)
12.8kg.cm (6.0V)
 3. Motion speed / 動作速度 : 0.09sec/60° (4.8V)
0.07sec/60° (6.0V)
 4. Dimension / 尺寸 : 40.1 x 20.1 x 37.3mm
 5. Weight / 重量 : 56g

60HB3



Socket button head screw
半圓頭內六角螺絲 (M3x6mm) x 4



Bearing
軸承 (φ 3x φ 7x3mm) x 2



M4 Set screw
M4 止空螺絲 (M4x4mm) x 1



Collar
升桿連動控制環套
(φ 3x φ 4x1.5mm) x 2



Control shaft collar
連動杆套 (φ 5x φ 6.3x14.5mm) x1



Linkage ball B
球頭 (M3x3) (φ 4.75x3.77mm) x 1



Socket screw
圓頭內六角螺絲 (M2.5x6mm) x 1

60HB3A



Washer
墊圈 (φ 5x φ 7x0.2mm) x 2



Washer
墊圈 (φ 5x φ 7x0.5mm) x 2



Washer
墊圈 (φ 3x φ 5.5x0.3mm) x 2



Elevator ball link
升桿球連杆 x 1

60FLZ3



Linkage rod(E)
連杆 (E) (φ 1.96x32mm x 1



Ball link
600連杆器 x 2

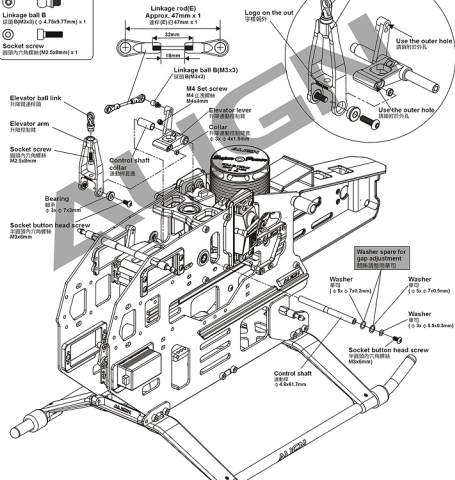
Apply a little amount of T43 thread lock when fixing a metal part.
鎖絲時請於金屬件處使用適量T43鎖絲劑。



Already assembled by Factory.
Before flying, please check if the screws are fixed with glue.
機架經廠家組裝，每次飛行前請先確認螺絲架頂部已膠合固定。



Please fasten the elevator ball link and screws all the way in.
升桿球連杆及螺絲須鎖緊。





Assembling Umbrella Gear:
Please note to push the gear to the end at a fixed position, to make sure the gears mesh with each other smoothly.
注意组装：注意務必将齿轮推到底定位，以避免齿轮啮合不顺畅。

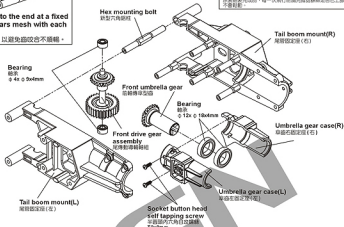
Apply a little amount of T43 thread lock when fixing a metal part.
螺丝紧固时金属件请使用少量T43(锁漆剂)

CAUTION
注意

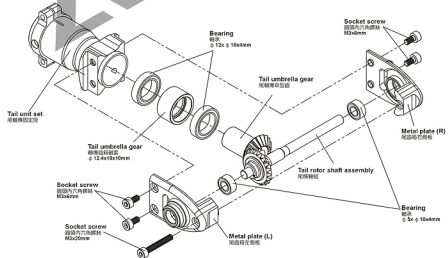
Already assembled by Factory.
Before flying, please check if the screws are fixed with glue.

已经由工厂完成组装，起飞前请检查螺丝是否涂胶。

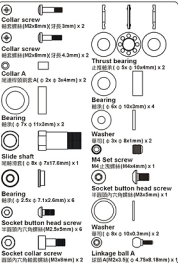
60HT1



60HT6



60HT6



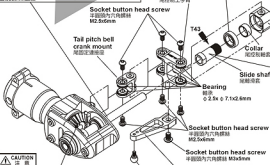
Please tighten M2x8mm collar screw firmly but not over tightened, please use suitable amount of T43 on the thread. Over tighten the screw will cause the operation of control link unsmoothly.

鎖緊 M2x8mm 軸套螺絲請使用適量之油，並使用適量 T43 螺絲鎖固定，過度鎖緊會造成尾輪控制連桿轉動不順。



Aim tail rotor hub at the concave of tail rotor shaft and fix it, please apply a little glue on the set screw.

尾蓋與 T 型尾輪座半尾輪軸的凹位對準 → 請確認止推螺絲上膠。



Assembling Umbrella Gear :
Please note to push the gear to the end at a fixed position, to make sure the gears mesh with each other smoothly.

傘齒組裝：注意齒必須到底定位，以避免齒咬合不順暢。

Apply a little amount of T43 thread lock when fixing a metal part.
螺絲鎖於金屬件請使用適量 T43 (螺絲油)



Already assembled by Factory.
Before flying, please check if the screws are fixed with glue.

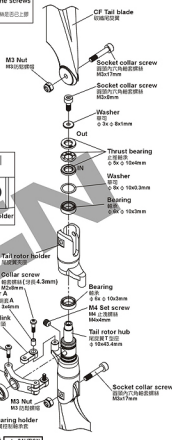
廠家已預先組裝，每一架飛行前請先檢查螺絲是否已上膠。

60HT2A



THRUST BEARING 止推螺絲
Apply grease on thrust bearing.

止推螺絲上潤滑油



While assembly the slide shaft, please use suitable amount of T43 on the thread. Please do not use R48 anaerobics retainer or other high strength glue to avoid damages while maintenance or repairs.

組立尾輪滑套時，請使用適量的 T43 螺絲鎖在螺絲上，嚴禁使用 R48 高膠合性軸承膠防止膠合過緊，以免日後維修等維護零件之損傷。



After complete the tail rotor assembly, please check if it rotates smoothly.

尾蓋與尾輪架完全組裝後請確認尾蓋與尾輪架轉動。



Apply a little amount of T43 thread lock when fixing a metal part.
裝緊金屬零件時請使用適量T43鎖固膠。

Already assembled by factory, please note to check again.
已前完成，請務必自行再檢查。

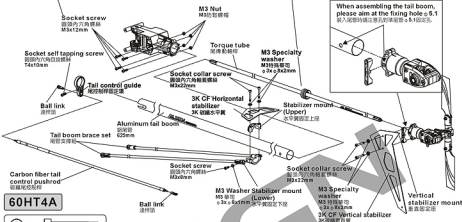
When assembling into the tail boom, please apply some oil on the surface, to make it smooth during the assembling and keep it vertical with the torque tube for smooth rotation.

插入尾筒內時，外表抹出潤滑油，以便平滑裝入尾筒中並與尾筒軸保持垂直，讓尾筒轉動順暢。

CAUTION
注意

Already assembled by Factory. Before flying, please check if the screws are fixed with glue.
零件裝配完成時，每一次飛行前請檢查該處螺絲是否已塗上鎖固膠。

When assembling the tail boom, please aim at the fixing hole $\phi 6.1$ 插入尾筒時請注意對準螺絲孔 $\phi 6.1$ 固定孔。



60HT4A



60HT5A



60HT6



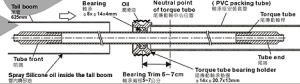
60HT1A



TIP TO FIX THE TORQUE TUBE 傳動軸軸承固定位置須

Please apply some CA glue to fix bearing on the torque tube, avoid CA glue from the dust or may cause the bearing stick. When assembling into the tail boom, please apply some oil and use the attached torque tube mount helper to press the bearing holder of the torque tube into the tail boom horizontally.

請注意少量CA 粘膠多塗定尾筒傳動軸管，避免CA 粘到軸管的灰塵而導致軸卡死，插入尾筒內時，尾筒動軸軸承固定架須與尾筒保持水平並與尾筒軸承固定架垂直。



CAUTION
注意

Skewed Torque tube bearing holder will interfere with torque tube rotation and cause unusual vibration.
尾筒動軸軸承架安裝歪斜會造成傳動軸旋轉不順及尾部異常震動等現象。



CAUTION
注意

After moving the tail control rod adjustment sleeve to recommended position, glue the sleeve to carbon tail control rod with instant glue.
將尾控制桿固定環調整至建議位置後，將尾控制桿固定環與碳纖維尾控制桿接觸面以適量瞬間膠固定。

60HB3



Socket screw
圓頭內六角螺絲 (M3x12mm) x 2

60HB3A



M3 Washer
M3螺絲墊片(3x6x1mm) x 2

60HT1A



Socket screw
圓頭內六角螺絲 (M3x10mm) x 12



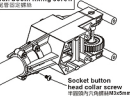
Socket button head screw
半圓頭內六角螺絲 (M3x5mm) x 1

Apply a little amount of T43 thread lock when fixing a metal part.
螺絲鎖付於金屬件請使用適量T43螺絲膠。

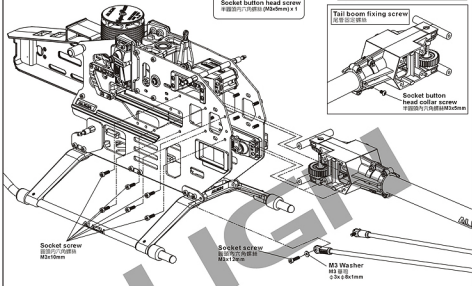


Already assembled by Factory.
Before flying, please check if the screws are fixed with glue.
零件廠家已組裝，每一次飛行前請先確認螺絲是否已膠合牢固。

Tail boom fixing screw



Socket button head collar screw
半圓頭內六角螺絲M3x5mm



Socket screw
圓頭內六角螺絲
M3x10mm

Socket screw
圓頭內六角螺絲
M3x12mm

M3 Washer
M3螺絲墊片
3x6x1mm

60HB6



Bearing
軸承(12x18x6mm) x 1



One-way bearing
單向軸承(12x18x16mm) x 1



Washer
單向軸承墊片(11.5x18x0.8mm) x 1



One-way bearing shaft
單向軸承軸(9x12x34.7mm) x 1



Flat head self tapping screw
圓頭內六角自攻螺絲(T3x6mm) X 6

Autorotation tail drive gear set
600°自動旋轉尾齒(131T)

Washer
單向軸承墊片
11.5x18x0.8mm

CNC Slant thread
main drive gear
斜主齒(119T)

Main gear case
主齒中心座

Flat head self tapping screw
圓頭內六角自攻螺絲
T3x6mm

One-way bearing shaft
單向軸承軸
9x12x34.7mm

One-way bearing
單向軸承
12x18x16mm

Bearing
軸承
12x18x4mm

Apply grease
塗上潤滑油



Before tightening the screw, please rotate the bearing and check the concentricity of the bearing in order to have the screw firmly secured, to avoid the bearing stuck or heavy load at one side and cause slip.

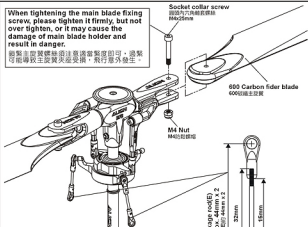
上緊螺絲前請先旋轉軸承同心度良好後，才能將螺絲平均鎖緊，以避免造成卡死或單向重負載可能產生的打滑。

Please fasten the screws to the $\phi 2.5$ holes of the slant main gear.
螺絲鎖付於斜主齒 $\phi 2.5$ 孔位。

When tightening the main blade fixing screw, please tighten it firmly, but not over tighten, or it may cause the damage of main blade holder and result in danger.

在緊固主翼螺絲時，請確實鎖緊，但不可過度鎖緊，否則可能會導致主翼夾具受損，飛行時意外發生。

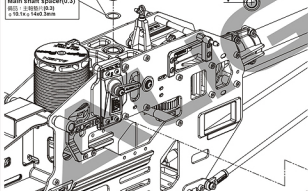
Socket collar screw
鎖固內六角軸套螺絲 M4x25mm



Linkage rod(E)
Approx. 44mm x 2
连杆(E)
约44mm x 2

Standard Equipment :
Main shaft spacer(0.5)
標準品：主軸墊片(0.5)
φ 10.1x φ 14x0.5mm

Spare part :
Main shaft spacer(0.3)
備品：主軸墊片(0.3)
φ 10.1x φ 14x0.3mm



Main shaft
主軸

Swashplate Leveler
十字調整器

Horizontally Level
水平

Swashplate
十字盤

CAUTION
注意

Before setting up the Gpro FBL system, please use a swashplate leveler to level out the swashplate. Adjust the length of servo linkage rod to make sure the swashplate is leveled before start setting up Gpro to ensure Gpro provides the best performance.

使用Gpro飛行者系統，請務必使用十字盤調整器將十字盤，調整調整器達到高度，確保十字盤達到水平狀態，再進行Gpro基本機體設定，這樣才能確保Gpro飛行性能達到最佳效果。

The lower edge of main gear need to be lined up with lower edge of pinion gear. This will ensure smooth meshing, and avoid interference between pinion's base and main gear which can lead to unusual wear.

兩齒輪下緣必須與主齒輪下緣水平切齊，如未切齊將造成齒輪接觸，造成異常磨損，嚴重時將造成齒輪產生異常干涉磨損。



Washer
墊片 φ 4 x 5x1mm

Apply a little amount of T43 thread lock when fixing a metal part.
鎖固螺絲時對金屬件建議使用適量T43螺絲鎖。

CAUTION
注意

Already assembled by Factory.
Before flying, please check if the screws are fixed with glue.

所有螺絲均已鎖固，每次飛行前請先確認螺絲是否已上膠。

60FLH4A

Main Blade Fixing Screw

鎖主翼螺絲螺絲



Socket collar screw
鎖固內六角軸套螺絲(M4x25mm) x 2



M4 Nut
M4的螺絲帽 x 2

60HB6



Socket collar screw
鎖固內六角軸套螺絲(M4x25mm) x 1



M3 Nut
M3的螺絲帽 x 1

60FLH5

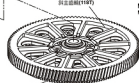


Main shaft spacer(0.5)
主軸墊片(0.5)
φ 10.1x φ 14x0.5mm x 1

Spare part:
Main shaft spacer(0.3)
備品：主軸墊片(0.3)
φ 10.1x φ 14x0.3mm x 1

CNC Slant thread
main drive gear
斜主齒輪(118T)

M3 Nut
M3的螺絲帽



Socket screw
鎖固內六角螺絲螺絲
M3x25mm

60FLZ3



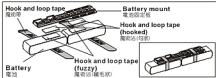
Ball link
球桿 x 4

Linkage rod(D)
连杆(D) φ 1.9x32mm x 2

BATTERY INSTALLATION ILLUSTRATION 電池安裝示意圖

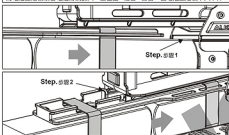


Please fix the 2 batteries on the battery mount evenly.
2顆電池請平均固定於電池板上。

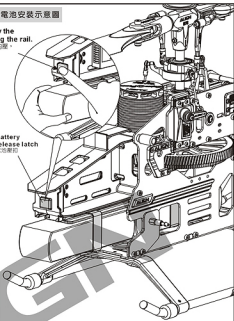


Press this latch to allow the battery to slide along the rail.
當電池卡入時請先將電池壓入下方壓，
順著滑軌裝上。

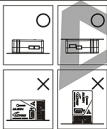
Slide the battery mounting plate along the rail until a "click" is heard to make sure the battery mounting plate is latched.
將電池固定板順著電池滑軌裝入，至發出「啾啾」聲響，使電池固定板卡入卡榫。



Battery release latch
電池壓扣



8. EQUIPMENT INSTALLATION 各項設備配置圖



- Consult the following diagram for Gpro installation direction, with arrow pointing toward nose or tail of helicopter. Gpro needs to be mounted flat on gyro mounting platform, away from vibration sources.
- Two pieces of foam mounting tape can be used if helicopter experiences vibration induced flight instability. However, if this still doesn't cure the problem, please check the helicopter mechanics and minimize mechanical vibrations, or reduce the headspeed.
- Please secure with genuine factory issued double sided anti-vibration mounting tape.

- Gpro擺放方向請參照圖示，方向指示箭頭指向機頭或機尾，水平擺放於陀螺儀固定座，並遠離震動源。
- 機體震動會影響陀螺儀偵測，造成飛行不穩定，可於Gpro下方貼附2片泡棉減震，若仍未改善，請檢查機體掛架震動或降低主旋翼轉速。
- 請使用原廠提供避震泡棉雙面膠固定。

Option equipment
選購品
Battery of receiver
接收器電池

Option equipment
選購品
Remote receiver
遙控接收器

Gpro Flybarless System
Gpro 飛平儀系統

Directional Arrow
方向指示箭

3GX foam tape
3GX 泡棉

Receiver mount
接收器座

Hook and loop tape
(fuzzy)
黏貼帶(絨毛面)

Hook and loop tape
(hooked)
黏貼帶(有勾)

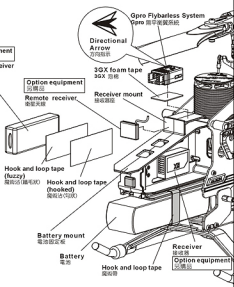
Battery mount
電池固定板

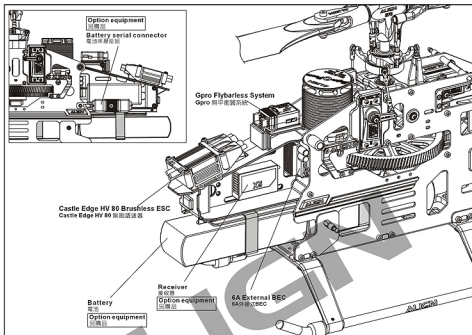
Battery
電池

Hook and loop tape
或黏帶

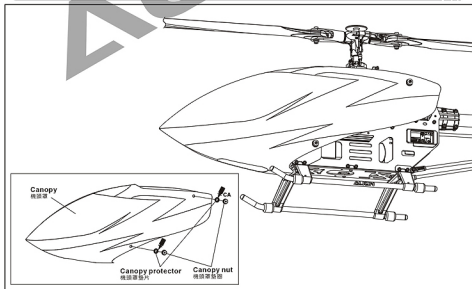
Receiver
接收器

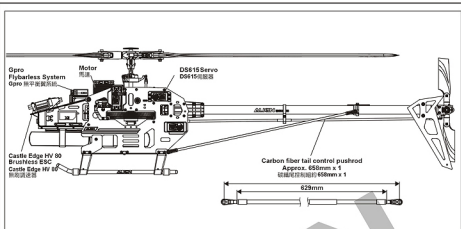
Option equipment
選購品





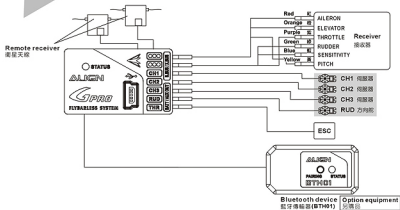
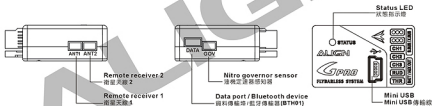
10. CANOPY ASSEMBLY 機頭罩安裝





PARTS IDENTIFICATION 各部位名稱

Gpro FLYBARLESS SYSTEM Gpro 飛平衡翼系統



Turn off Revolution mixing(RVMX) mode on the transmitter, then set the gain switch on the transmitter and the gyro to non-Head lock mode, or disable gain completely. After setting the transmitter, connect the helicopter power and proceed with rudder neutral point setting. Note: When connecting to the helicopter power, please do not touch tail rudder stick and the helicopter, wait for 3 seconds for gyro to enable, and the rudder servo horn should be 90 degrees to the tail servo. Tail pitch slider should be half way on the tail output shaft. This will be the standard rudder neutral point. After completing this setting, set the gain switch back to heading lock mode, with gain at around 70%.

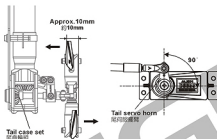
發射器內陀螺儀設定請關閉軸混控模式，並將發射器上的感度開關與陀螺儀切至“非鎖定模式”或將陀螺儀感度關閉。發射器設定完成後接上直升機電源，即可進行尾舵中立點設定。注意：接上電源時請勿碰觸尾舵桿或碰觸飛機。待3秒陀螺儀開機完成後，尾舵桿應與尾向伺服器約成90度，尾翼調整控制桿滑正標面於尾橫軸的中間位置，即為標準尾舵中立點設定。設定完成後，切換至“鎖定模式”，感度設約70%左右。

TAIL NEUTRAL SETTING

尾中立點設定

After the gyro is enable and under non-Head lock mode, correct setting position of tail servo and tail pitch assembly is as photo. If the tail pitch assembly is not in the middle position, please adjust the length of rudder control rod to trim.

陀螺儀開機後，在非鎖定模式下，尾向伺服器與尾 Pitch 控制組正確擺置位置，若尾 Pitch 控制組未居中時請調整尾控制桿的長度來修正。



HEAD LOCK DIRECTION SETTING OF GYRO 陀螺儀鎖定方向設定

To check the head lock direction of gyro is to move the tail clockwise and the tail servo horn will be trimmed counterclockwise. If it trims in the reverse direction, please switch the gyro to "REVERSE".

陀螺儀鎖定方向確認，當手搖尾槳順時鐘擺動，尾向舵桿應反時鐘修正，反向時請切換陀螺儀上“鎖定反向”開關修正。



GENERAL FLIGHT 一般飛行模式



Stick position at high/Throttle 100%/Pitch+12°
 選擇高速/油門100%,Pitch+12°



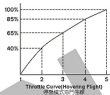
Stick position at Hovering/Throttle 70%/Pitch+5°
 選擇停滯/油門70%,Pitch+5°



Stick position at low/Throttle 0%/Pitch-2 ~ 0°
 選擇低速/油門0%,Pitch-2 ~ 0°

GENERAL FLIGHT
一般飛行模式

| Throttle 油門 | Pitch 螺距 |
|----------------------------------|-------------|
| 5 100% High speed 100% 高速 | +12° |
| 4 80% | |
| 3 80%~85% Hovering 80%~85% 停滯 | +5° |
| 2 40% | |
| 1 0% Low speed 0% 低速 | -2° ~ 0° |



Pitch and Rotation Speed: Pitch與轉速關係

TIP: It is recommended to use a lower pitch setting when using higher RPM/Head speed. This will allow for better power.
 搭配螺距: 如果使用較高轉速馬達動力建議搭配調整 Pitch, 將獲得較佳動力效果。

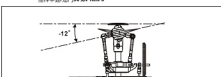
3D FLIGHT 3D特技飛行模式



Stick position at high/Throttle 100%/Pitch+12°
 選擇高速/油門100%,Pitch+12°



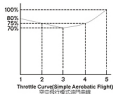
Stick position at middle/Throttle 90%/Pitch 0°
 選擇中速/油門90%,Pitch 0°



Stick position at low/Throttle 100%/Pitch-12°
 選擇低速/油門100%,Pitch-12°

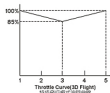
IDLE 1: SPORT FLIGHT

| Throttle 油門 | Pitch 螺距 |
|----------------|-------------|
| 5 100% | +10 ~ +12° |
| 4 70% | |
| 3 70% | +5° |
| 2 70% | |
| 1 80% | -2° |



IDLE 2: 3D FLIGHT

| Throttle 油門 | Pitch 螺距 |
|-----------------------|-------------|
| 5 100% High 100% 高 | +12° |
| 3 85% Middle 85% 中 | 0° |
| 1 100% Low 100% 低 | -12° |



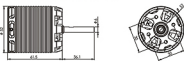
1. Pitch range : Approx. $\pm 15^\circ$.
2. If the pitch is set too high, it will result in shorter flight duration and poor motor performance.
3. Setting the throttle to provide a higher speed is preferable to increasing the pitch too high.

1. 螺距(Pitch)總行程約 $\pm 15^\circ$ 。
2. 螺距設定過高, 會導致動力與飛行時間降低。
3. 動力提升以較高轉速的設定方式, 優於螺距過大的設定。

RCM-BL750MX 530KV MOTOR RCM-BL750MX 530KV 無刷馬達

This new Brushless motor developed by the ALIGN POWER R&D TEAM, is packed with the latest, cutting edge technology available today. It features exceptional levels of high-torque power. The 750MX utilizes an 10-pole outrunner stator-rotor and unrivaled Ndfeb extra strong magnets that traditional magnets cannot compare to. Also included is a high temperature, wear-resisting, low friction, double ZZ high efficiency bearing. The 750MX will be the most revolutionary motor operating on low current amperage, and delivering high torque to RC models.

由於托動力團隊獨家研出新款的無刷馬達，具有超高扭力特色，採用 12 槽矽鋼片、10 極外轉子以及傳統無法比擬的釹鐵硼超強磁鐵，搭配高溫耐用的雙 ZZ 超高效率磁軸承設計，電流低、扭力強，堪稱下一代動力革命中的最具代表性的一顆星。



SPECIFICATION 尺寸規格

| KV | KV 值 | 530KV(RPM/V) | Input voltage | 輸入電壓 | 12S |
|------------------------|--------|--------------------------|---------------------------|--------|--------------|
| Stator Arms | 矽鋼片槽數 | 12 | Magnet Poles | 磁極數 | 10 |
| Max continuous current | 最大持續電流 | 106A | Max instantaneous current | 最大瞬間電流 | 165A(5sec) |
| Max continuous power | 最大持續功率 | 4400W | Max instantaneous power | 最大瞬間功率 | 7260W(5sec) |
| Dimension | 尺寸 | Shaft ϕ 6x52x97.4mm | Weight | 重量 | Approx. 452g |

ILLUSTRATION 接線示意圖



The motor rotates in different direction with different brand ESCs. If the wrong rotating direction happens, please switch any two cables to make the motor rotates in right direction.

由於各品牌電子變速器的馬達旋轉方向不盡相同，若發生轉向錯誤時，請將馬達與電子變速器的接線任兩線對調即可。

15.6A EXTERNAL BEC INSTRUCTION MANUAL

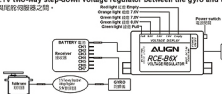
6A 外接式 BEC 使用說明

• Input voltage: DC7.4V 2cell Lithium battery • Output voltage: DC5.8V • Max. Continuous Current: 6A • Integrated power switch and voltage indicator meter • Utilizes a linear design, resulting in no interference to the receiver. • Including a 5A 5.1V two-way step-down Voltage Regulator • Size: 60x34x16mm • Weight: 31g(Including wire set)

• 輸入電壓: DC 7.4V 2CELL 鋰電 • 輸出電壓: DC 5.8V • 最大連續輸出電流: 6 安培 • 具電壓切換開關與電壓顯示功能 • 探線性設計，無干擾接收機的缺點 • 附 5A 5.1V 雙向降壓器 • 尺寸: 60x34x16mm • 重量: 31g (含線組)

WIRING ILLUSTRATION: Connect a 5.1V two-way step-down voltage regulator between the gyro and the rudder servo.

接線示意圖: 5.1V 雙向降壓器連接於陀螺儀與尾舵伺服器之間。



INSTRUCTION:

1. Auto-detecting voltage meter display lights. If the entire five-light array is illuminated, the battery is fully charged. When the voltage drops below 7.6V, the three green lights will be turned off. Use caution, the battery can only be safely used for a single flight. When only the red light is on, the battery voltage is drained, and must be fully recharged before use. Do not attempt to operate the model during this condition!
2. Some servos such as Futaba servo models 9241, 9251, 9253, 9254, 9255, 9256 and other digital servos are not capable of handling 6V. Please connect a 5.1V two-way step-down voltage regulator to avoid the servo damaged. If you are using a servo that can accept 6V input, the regulator is not required.
3. When using a speed controller with BEC output, you must remove the red wire of BEC output on the speed controller.
4. If the receiver does not have enough channels or an available socket, you can use a Y-type servo harness to share any channel with an existing connection.

1. 本產品具電壓指示功能，當插入充飽的電池時五顆指示燈全亮，表示電池在 Full 電量充足狀態下；使用中當電壓降至 7.6V 時 (3 顆綠燈熄滅)，尚可完成單趟飛行即須對電池充電或更換新電池；若如僅亮紅燈時表示 Empty 電量不足，不應再使用喔！
2. 部份的伺服器如：Futaba 9241, 9251, 9253, 9254, 9255, 9256 等，此類型的伺服器不適合於較高的電壓下操作，所以使用此類型的伺服器時請另外加裝 5.1V 降壓器，避免伺服器損壞；規格標示允許 6V 輸入的伺服器則不須使用降壓器。
3. 使用與 BEC 輸出之调速器時，必須將调速器 BEC 輸出的紅色線拆除！
4. 若接收機已無多餘的電源插孔時，可另用一條伺服 Y 型連接線，接到接收機的任一通道，再將外殼 BEC 與拆下的通道一同接在 Y 型線上。

NOTE: When fixing the wire, please do not over tighten to avoid the connector come off or the wire broken when the helicopter rotates (vibration); do not operate in rain or moisture environment to avoid the electric parts short circuit and damaged.

注意：固定線路時切勿將線拉太緊，以免因飛機旋轉時因震動造成線路鬆脫或斷線；避免在雨中或潮濕的環境下使用，以免造成零件短路而損壞。

PLEASE PRACTICE SIMULATION FLIGHT BEFORE REAL FLYING 飛行前請事先熟練電腦模擬飛行

A safe and effective practice method is to use the transmitter flying on the computer through simulator software sold on the market. Do a simulation flight until you familiarize your fingers with the movements of the rudders, and keep practicing until the fingers move naturally.

1. Place the helicopter in a clear open field (Make sure the power OFF) and the tail of helicopter point to yourself.
2. Practice to operate the throttle stick (as below illustration) and repeat practicing "Throttle high/low", "Aileron left/right", "Rudder left/right", and "Elevator up/down".
3. The simulation flight practice is very important, please keep practicing until the fingers move naturally when you hear operation orders being call out.

在還沒瞭解直昇機各動作的操控方式前，嚴禁實機飛行，請先進行電腦模擬飛行的練習。一種最有效、最安全的練習方式，就是透過市面販售的模擬軟體，以遙控器在電腦上模擬飛行，熟悉各種方向的操控，並不斷的重複，直到手指可熟練的控制各個動作及方向。

1. 將直昇機放在空曠的地方(確認電源為關閉)，並將直昇機的機尾對準自己。
2. 練習操作遙控器的各桿桿(各動作的操作方式如下圖)，並反覆練習油门/低、副翼左/右、升降舵前/後及方向舵左/右操作方式。
3. 模擬飛行的練習相當重要，請重複練習直到不構思索，手指能自然隨著喊出的指令移動控制。



| Mode 1 | Mode 2 | Illustration 圖示 |
|--------|--------|---|
| | | <p>Move left 左移</p> <p>Rotate left 左翻</p> <p>Move right 右移</p> <p>Rotate right 右翻</p> |
| | | <p>Fly forward 前進</p> <p>Fly backward 後退</p> <p>Forward rotate 前翻</p> <p>backward rotate 後翻</p> |
| | | <p>Ascent 上升</p> <p>Descent 下墜</p> |
| | | <p>Turn right 右旋</p> <p>Turn left 左旋</p> |

FLIGHT ADJUSTMENT AND NOTICE 飛行調整與注意



- Check if the screws are firmly tightened.
- Check if the transmitter and receivers are fully charged.
- 再次確認→螺絲是否鎖緊?
- 發射器和接收器電池是否定額。



If there are other radio control aircraft at the field, make sure to check their frequencies and tell them what frequency you are using. Frequency interference can cause your model, or other models to crash and increase the risk of danger.

假使飛行場有其他遙控飛機，請確認他們的頻率，並告知他們您正在使用的頻率，相同的頻率會造成干擾導致失控和大大地增加風險。

STARTING AND STOPPING THE MOTOR 啟動和停止馬達



First check to make sure no one else is operating on the same frequency. Then place the throttle stick at lowest position and turn on the transmitter.

首先確認附近沒有其他相同頻率的使用者，然後打開發射器將油門搖桿推到底點。

- Check the movement.
- 動作確認



ON! Step1
First turn on the transmitter.
先開啟發射器



ON! Step2
Connect to the helicopter power
插上直昇機電源



Check if the throttle stick is set at the lowest position.
確認油門搖桿是在最低的位置。



- Are the rudders moving according to the controls?
- Follow the transmitter's instruction manual to do a range test.
- 方向舵是否隨著控制方向移動?
- 根據發射器說明書進行距離測試。



OFF! Step3
Reverse the above orders to turn off.
關閉電池的請像上述操作動作反執行。

This procedure is best performed on soft surfaces such as grass. The use of rubber skid stopper is recommended on hard surface to prevent vibration feedback from the ground to Gpro, resulting in over-corrections.

將直升機置於柔軟的地面上，建議性地將起落架裝上避震墊圈，避免升空前腳架與過硬的地面震動太大反饋至機身上的Gpro，影響平衡與系統升空前過度修正。

Rubber skid stopper installed 裝上避震墊圈



If swashplate should tilt prior to lift off, do not try to manually trim the swashplate level. This is due to vibration feedback to the Gpro, and will disappear once helicopter lifts off the ground. If manual trim is applied, helicopter will tilt immediately after liftoff.

當直升機起飛前，十字盤可能會因Gpro震動的反應，使十字盤有傾斜的情形，此時請勿調整十字盤修正為水平狀態，此現象只要離地升空時立即解除，可平衡升空；若出現十字盤修正為水平時，反而會造成反應過度修正，一離地即會在修正方向的危險。

MAIN ROTOR ADJUSTMENTS 主旋翼雙槳平衡調整

- Before adjusting, apply a red piece of tape on one blade, or paint a red stripe with a marker or paint to identify on blade.
- Raise the throttle stick slowly and stop just before the helicopter lifts-off ground. Look at the spinning blades from the side of the helicopter.
- Look at the path of the rotor carefully. If the two blades rotate in the same path, it does not need to adjustment. If one blade is higher or lower than the other blade, adjust the tracking immediately.

- When rotating, the blade with higher path means the pitch is too big. Please shorten DFC ball link for regular trim.
- When rotating, the blade with lower path means the pitch is too small. Please lengthen DFC ball link for regular trim.



Tracking adjustment is very dangerous, so please keep away from the helicopter at a distance of at least 10m.

調整軌跡非常危險，請於調整飛機最少10公尺的距離。

Incorrect tracking may cause vibrations. Please repeat adjusting the tracking to make sure the rotor is correctly aligned. After tracking adjustment, please check the pitch angle is approx. +5~6° when hovering.

不正確的旋翼軌跡會導致震動，請不斷重複調整軌跡，使旋翼軌跡精準正確。在調整軌跡後，確認一下Pitch角度在停空時應為大約+5~6°。

Color mark 有標示記號的主旋翼



FLIGHT ADJUSTMENT AND NOTICE 飛行調整與注意

⊙ During the operation of the helicopter, please stand approximately 10M diagonally behind the helicopter.

⊙ 飛行時，請站在直昇機後方至少10公尺。



- ⊙ Make sure that no one or obstructions in the vicinity.
- ⊙ For flying safety, please carefully check if every movement and directions are correct when hovering.
- ⊙ 確認鄰近地區沒有人和障礙物。
- ⊙ 為了飛行安全，您必須先確認停滯的各項操控動作是否正確。

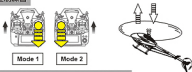


Do not attempt until you have some experiences with the operation of helicopter.
嚴禁嘗試操縱飛行經驗者操縱飛行。

STEP 1 THROTTLE CONTROL PRACTICE 油門控制練習

⊙ When the helicopter begins to lift-off the ground, slowly reduce the throttle to bring the helicopter back down. Keep practicing this action until you control the throttle smoothly.

⊙ 當直昇機開始離地時，慢慢降低油門將飛機降下，持續練習飛機從地面上升和下降直到您覺得油門控制自如。



STEP 2 AILERON AND ELEVATOR CONTROL PRACTICE 副翼和升降控制練習

1. Raise the throttle stick slowly.
2. Move the helicopter in any direction back, forward, left and right, slowly move the aileron and elevator sticks in the opposite direction to fly back to its original position.

1. 慢慢升起油門桿。
2. 使直昇機依指示：移動向後/向前/向左/向右，慢慢的反向移動副翼和升降桿並將直昇機回到原來位置。



- ⊙ If the nose of the helicopter moves, please lower the throttle stick and land the helicopter. Then move your position diagonally behind the helicopter 10M and continue practicing.
- ⊙ If the helicopter flies too far away from you, please land the helicopter and move your position behind 10M and continue practicing.
- ⊙ 當直昇機機頭偏移時，請降低油門並且降落，然後移動自己的位置到直昇機的正後方10公尺再繼續練習。
- ⊙ 假如直昇機飛離你太遠，請先降落直昇機，並到直昇機後10公尺再繼續練習。

STEP 3 RUDDER CONTROL PRACTICING 方向舵操作練習

1. Slowly raise the throttle stick.
2. Move the nose of the helicopter to right or left, and then slowly move the rudder stick in the opposite direction to fly back to its original position.

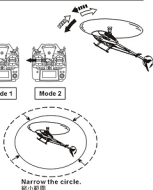
1. 慢慢升起油門桿。
2. 將直昇機機頭移動左或右，然後慢慢反向移動方向舵桿並將直昇機飛回原本位置。

STEP 4

After you are familiar with all actions from STEP1 to 3, draw a circle on the ground and practice within the circle to increase your accuracy.

當你覺得 STEP1-3 動作熟悉了，在地上畫個圈並在這個圈內的範圍內練習飛行，以增加你操控的精確度。

- ⊙ You can draw a smaller circle when you get more familiar with the actions.
- ⊙ 當你更加習慣操作動作，你可以畫更小的範圍。



STEP 5 DIRECTION CHANGE AND HOVERING PRACTICE 改變直昇機方向和練習停滯

After you are familiar with STEP1 to 4, stand at side of the helicopter and continue practicing STEP1 to 4. Then repeat the STEP1 to 4 by standing right in front of the helicopter.

當你覺得STEP1-4動作熟悉了，站在面對直昇機側面並繼續練習STEP1-4。之後，站在直昇機機頭右邊重複步驟練習。



| | Problem 狀況 | Cause 原因 | Solution 對策 |
|--------------------------------------|--|--|--|
| Blade Tracking 雙槳平衡 | Tracking is Off 置誤 | Pitch linkage rods are not even length PITCH連桿長度調整不平均 | Adjust length of DFC ball link. 調整DFC連桿球長度 |
| Hover 停懸 | Headspeed too low 主旋翼轉速偏低 | Excessive pitch 主旋翼的PITCH過高 | Adjust DFC ball link to reduce pitch by 4 to 6 degrees. 調整DFC連桿球請將Pitch的+4-5度 |
| | | Hovering throttle curve is too low 停懸點油门曲線過低 | Increase throttle curve at hovering point on transmitter (around 60%) 請高停懸點油门曲線(約60%) |
| | Headspeed too high 主旋翼轉速偏高 | Not enough pitch 主旋翼的PITCH過低 | Adjust DFC ball link to increase pitch by 4 to 5 degrees. 調整DFC連桿球請將Pitch的+4-5度 |
| | | Hovering throttle curve is too high 停懸點油门曲線過高 | Decrease throttle curve at hovering point on transmitter (around 60%) 請低停懸點油门曲線(約60%) |
| Rudder Response 尾舵反應 | Drifting of tail occurs during hovering, or delay of rudder response when centering rudder stick. 停懸時尾翼向某一邊偏移，或啟動方向舵並回落到中立點時，尾翼產生延遲，無法停駐在預設位置上。 | Rudder neutral point improperly set 尾舵中立點設定不準 | Reset rudder neutral point 重設尾舵中立點 |
| | Tail oscillates (hunting, or wags) at hover or full throttle 停懸或全油门時尾翼左右來回搖晃。 | Rudder gyro gain too low 尾舵陀螺儀感度偏低 | Increase rudder gyro gain 增加尾舵陀螺儀感度 |
| | | Rudder gyro gain too high 尾舵陀螺儀感度偏高 | Reduce rudder gyro gain 降低尾舵陀螺儀感度 |
| Oscillation during flight 飛行抖動 | Elevator and aileron action causes helicopter to oscillate forward/backward or left/right. 升降舵、副翼的打舵動作時，機體前後或左右抖動。 | Swashplate gain in flight parameters is too high, causing oscillation. 飛行參數中的十字盤感度偏高，產生迴旋現象 | Lower swashplate gain. 將十字盤感度調低 |
| | Helicopter front bobbles (nods) during forward flight. 直飛飛行時，機體點頭 | Worn servo, or slack in control links 伺服器老化，控制結構有虛位 | Replace servo, ball link, or linkage balls. 更換伺服器、連桿球、球頭 |
| Drifting during flight 飛行飄移 | Helicopter pitches up during forward flight or aileron input causes helicopter to drift 直飛飛行機頭上揚或副翼動作飄移 | Swashplate gain in flight parameter is too low. 飛行參數中的十字盤感度偏低 | Increase swashplate gain. 將十字盤感度調高 |
| Control Response 動作反應 | Slow Forward/Aft/Left/Right input response 前後左右飛行動作反應偏慢 | Flying style or flight response setting or Flight Parameter is too low. 飛行參數中的飛行風格或飛行反應偏低 | Increase flying style or flight response. 調高飛行風格或飛行反應 |
| | Sensitive Forward/Aft/Left/Right input response 前後左右飛行動作反應偏快 | Flying style of flight response or Flight Parameter is too high. 飛行參數中的飛行風格或飛行反應偏高 | Lower flying style or flight response. 調低飛行風格或飛行反應 |

If above solution does not resolve your issues, please check with experienced pilots or contact your Align dealer.

※在做完以上調整後，仍然無法改善情況時，應立即停止飛行並向有經驗的飛手諮詢或連絡您的經銷商。

ALIGN

Specifications & Equipment/規格配備:

Length/機身長:1350mm

Height/機身高:360mm

Main Blade Length/主旋翼長:700mm

Main Rotor Diameter/主旋翼直徑:1582mm

Tail Rotor Diameter/尾旋翼直徑:281mm

Motor Drive Gear/馬達齒輪:14T

Main Drive Gear/主齒輪:112T

Autorotation Tail Drive Gear/尾槳動主齒:104T

Tail Drive Gear/尾翼傳動齒:22T

Drive Gear Ratio/齒輪傳動比:9.33:1:4.73

Weight(With Motor)/空機重(含馬達): 3310g

Flying Weight/全配重: Approx. 5200g

